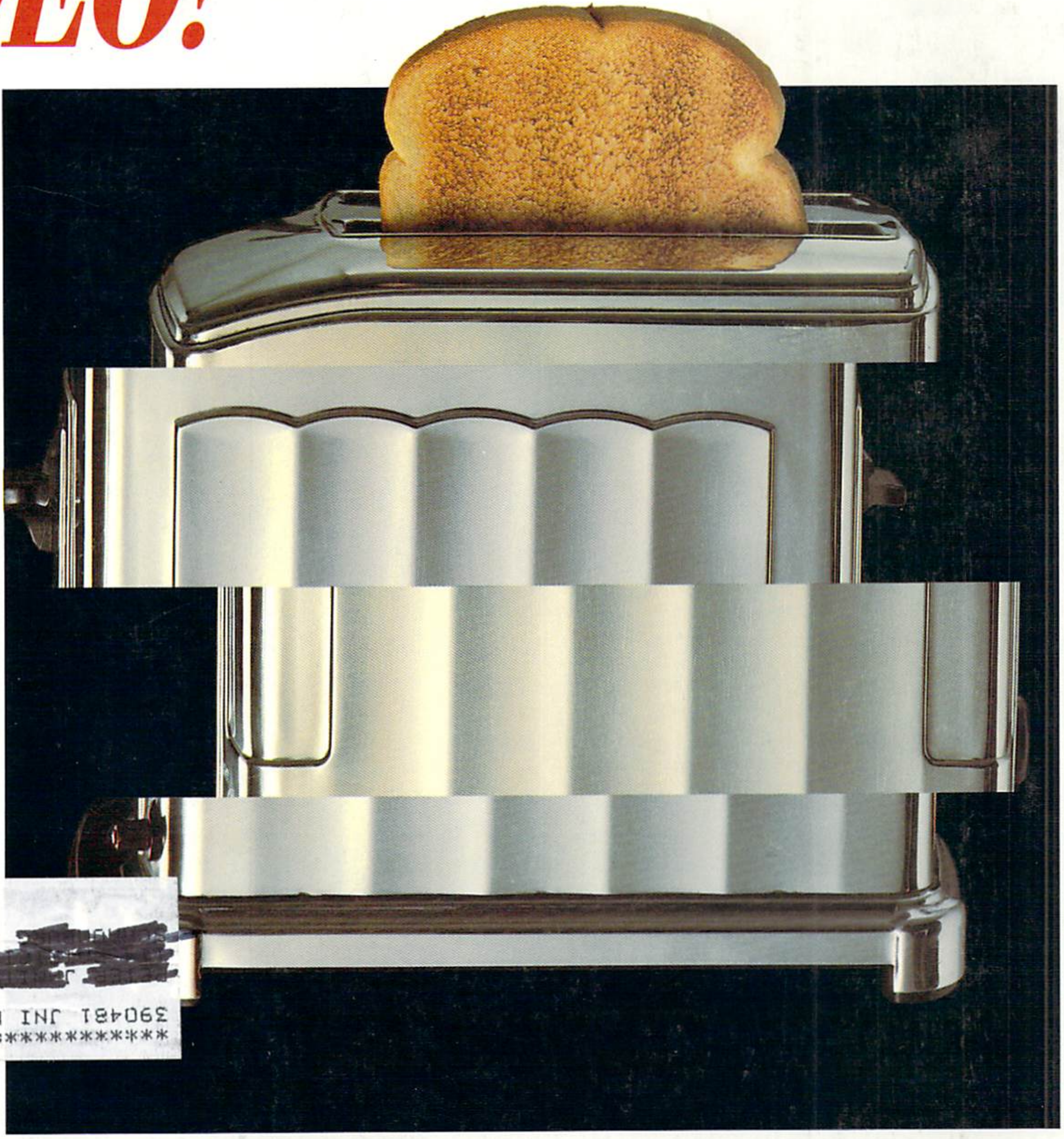
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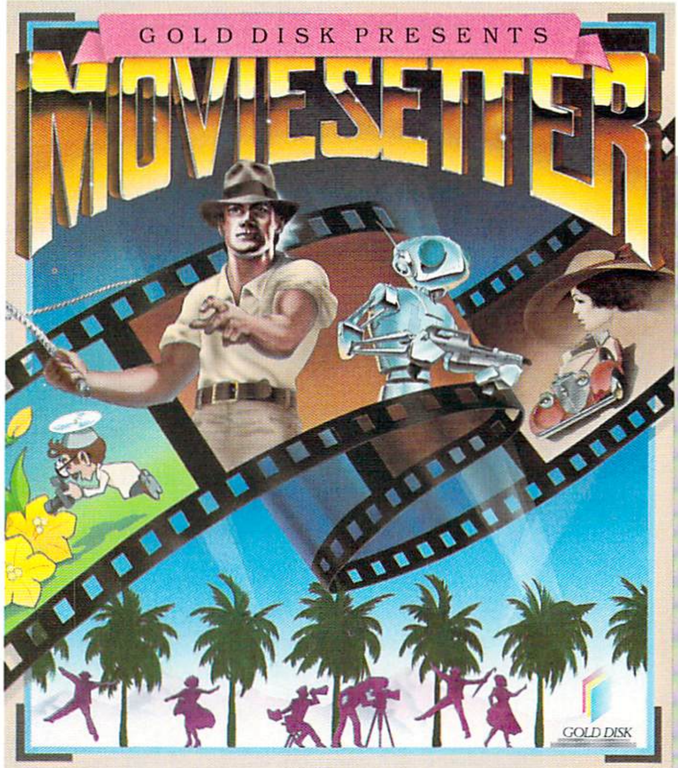


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Sunday Funnies.





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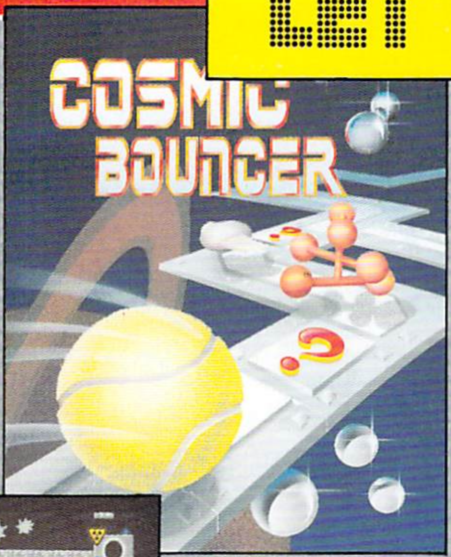
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LET THE GAMES BEGIN!





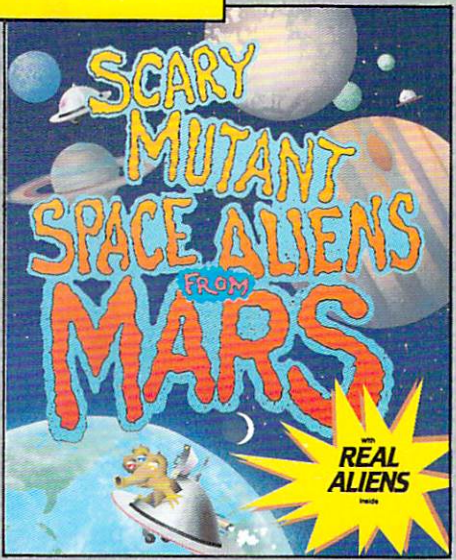
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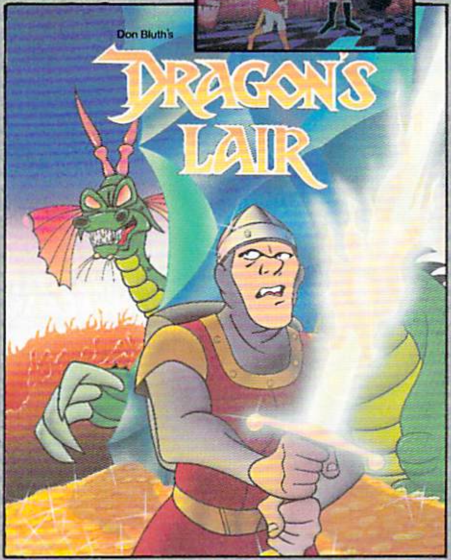


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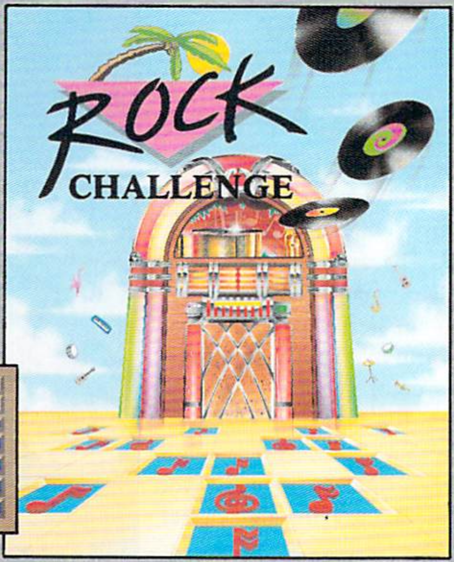


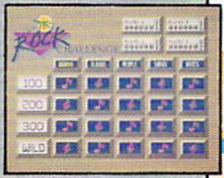




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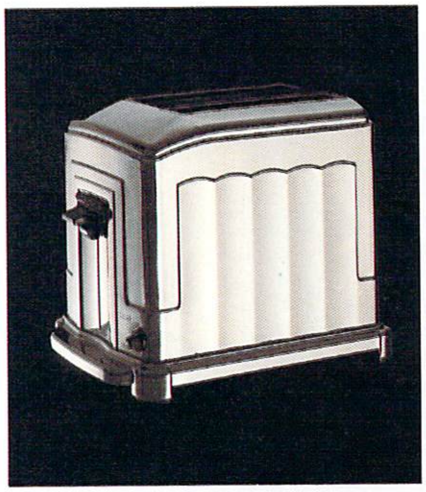
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FEATURES

ARTICLES

COLUMNS

DEPARTMENTS



Welcome to the world of special effects—where things like toasters (above) don't always look like toasters (cover) under the influence of the right software and hardware. And right now, a whole slew of new special-effects hardware—like NewTek's Video Toaster—and software is revolutionizing Amiga video. What's more, it's happening at prices affordable to home computerists. (Toaster courtesy of Arlene Barrett.)

GAMES

REVIEWS

COVER PHOTOGRAPH BY ED JUDICE



THE DIRECTOR™

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"If an Oscar were to be presented for Technical Excellence in Amiga Graphics, the winner would certainly be (the envelope, please) - The Director. ...an exciting, unique program...likely to become a classic..."

Steve King, Commodore Magazine-April 1988

"I must give The Director top marks for ease of use and capability. For the novice or serious presentation creator, this package is unequaled. It belongs on the shelf of anyone who considers himself an Amiga graphics connoisseur."

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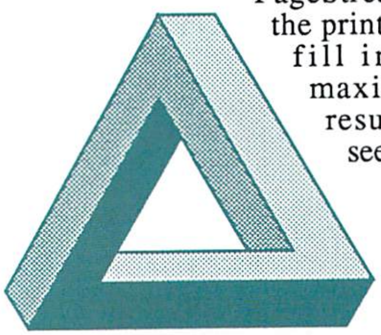
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ZEITGEIST

Amiga momentum and name-dropping.

I HAVE BEEN doing a lot of traveling in the past few months. Going to shows and visiting companies. Talking to dealers and users, developers, and even Commodore. Just about everyone has noticed that sales (both of Amigas and products relating to Amigas) have picked up considerably since August. Companies that are just entering the market, such as Elan Design, Incognito, Baudville, Emerald Intelligence, etc. are seeing great responses. Companies that had dropped out of the Amiga market and are now returning are seeing their decisions rewarded. And companies that have been here all along are seeing big payoffs.

There are a lot of new products coming out in the next few months, and that is good news for everyone. Commodore seems to be doing some promotion of the Amiga, and that is positive (right, David A.?). With any luck, by the time you read this there will be over a million Amigas sold.

In this issue, we wanted to cover Amiga video but ran into a snag. With all the video products out there and the ones coming out and the products that are related but not specifically labeled "video," we had a hard time picking and choosing. NewTek's Video Toaster is hot and definitely worth talking about, but what about Electronic Arts' or Aegis' new software, or RGB Video's impressive setup? And how do we deal with Philadelphia Video Labs and the kinds of things that they already do? There are people doing interactive video—KnowledgeWare, Michtron, and Dupont—who have done some impressive things.

But how do we talk about them all? Some are already doing impressive things and others are right on their heels. It seems that there is just too much going on with video and the Amiga to cover it all in one issue, which means we will just have to do some extra coverage in the next few months. Of course, the problem of having too much to talk about is better than not having enough. And I promise that if you didn't see a particular video product in this issue, we will be doing more, and sooner or later we will let you know about everything.

And not just video. During the past month I had a chance to look at some products in the works that will be worth waiting for. Cinemaware, as you may already know, is coming out with what they call "the ultimate football simulation." My first look indicates they may be right. Rainbird is making an impressive reentry into the Amiga market with their games. Precision is working on a stereo sound digitizer, RediSoft should have Dragon's Lair out, and they're working on a Mac emulator and a VCR hard-disk backup. Anyway, there is a lot of new work being done.

Commodore seems to be doing well these days, too. They are profitable and have put a few commercials on MTV promoting the A500. At COMDEX in Las Vegas last November, Bob Ryan and I spoke to Dr. Henri Rubin about some of CBM's new products. Commodore was showing their "new" A2500 and A2000HDs (A2000s with extra boards), their transputer board, and their Unix board. Dr. Rubin said that he wants Commodore machines to be the standard by which everyone else is judged. When it comes to workstations, price/performance ratios, and raw computing power, he might just be right. (He mentioned a 68030 board running at 33MHz. . .whew! That sucker must really cook!) All very hard core and high end. Now, what these products will mean to you and me is not completely clear.

When I asked him about products in the works, the answer was what you might expect, "I don't want to discuss anything that we can't demonstrate to you right now." End of speculation. I imagine we will get a look at the new stuff at the Hannover Fair in Germany next March. Until then, *AmigaWorld* will keep poking around and reporting it back to you.

Oh yes, I almost forgot. One thing that many people told us they wanted to see in *AmigaWorld* but didn't get enough of was game coverage. If you have read any of my editorials, then you should have a good idea how I feel about games. So, beginning in this issue, *AmigaWorld* is starting a section devoted entirely to game coverage. This first installment is all about. . .well, you can read it yourself. I'm not going to give it away.

Until next time or the time before (whichever comes next).

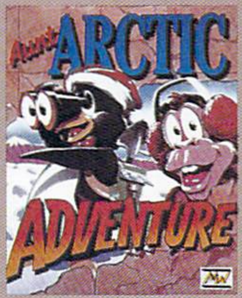
Good night Gracie.

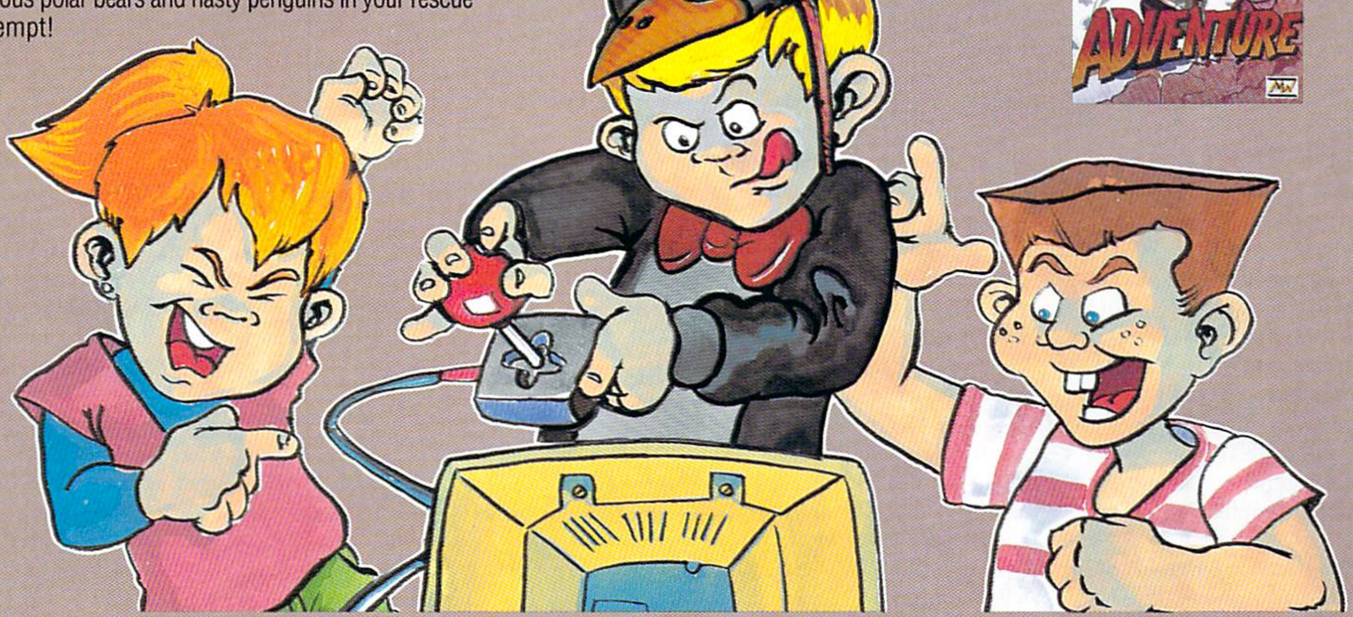


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REPARTEE

Comments, complaints, and concerns

from AmigaWorld *readers.*

TRICK KNEE

I HAVE READ numerous complaints about the Fat Agnus chip in the Amiga 500. When Agnus goes on the blink, most likely it has not burned out, but simply popped out, or become unseated. (However, service centers will gladly take your money for a replacement chip anyway.) The symptoms of this condition are a green screen and a blinking power light.

I have found a simple solution to this problem. Hold your 500 right-side up with the keyboard facing you. With your knee, gently tap the bottom middle of the machine. (I admit this seems cruel to do to something you have invested quite a bit of money in, but it will not hurt your 500 unless you really give it a smack.) Start off hitting it lightly, plug it in, and if it still doesn't work, do it again a little harder until you get it working. Or, you can open up the 500, find Agnus and pop her back into place (but I don't recommend this). I used the knee trick and have not had a problem since.

Ronald R. Roscoe
FPO, San Francisco, CA

BACKGROUND BBS

IN YOUR OCTOBER '88 Help Key column, a user talked about wanting to set up a BBS in the background on his Amiga 2000 ["Out Back in the BBS," p. 100]. You mentioned only the commercially available BBS-PC! from Micro-Systems Software. There are, however, public-domain/shareware alternatives.

In fact, as I type this letter, I am running Citadel-68K V2.14I in the background on my Amiga 1000. Citadel is a room-based BBS originating from the old CP/M days, which has been ported to various computers including the Amiga. There are two other strains of Citadel also available for the Amiga: AmiDel and STadel-Ami.

Citadel-68K supports virtually all types of modems, can support up to 64 rooms that can either be messages, files, or networking, or some combination. Citadel-68K is basic-level compatible with the Citadel Network, which includes many Citadel systems around Canada and the United States. STadel-Ami V3.3a, which should be available by the time you print this, will feature improved networking, truly private discussion rooms, and the ability to run outside programs.

My BBS has been in operation for just under a year without a hitch. I share several rooms, including an Amiga-specific room. It can be reached as: Lunatic Haven, (403) 239-1225, 300/1200/2400 bps. Numbers for other Room Type Systems can be obtained from the latest RSYS Listing.

Lawrence Chen
Calgary, Alberta
Canada

SOUTH OF THE BORDER

YOUR NOTEPAD article about Amiga prices around the world ["Exchange Rates," Nov. '88, p. 11] needs some correcting.

First of all, here in Mexico, Sigma is not the only Amiga outlet. Sigma is the Commodore representative here, but there are other computer stores that carry Amigas. Secondly, the list price of the A500 is 1,995,000 pesos (about \$850 U.S.) and the 1084 monitor is \$580 U.S. These prices are high due to the high import taxes.

Gerardo A. Dada
Cuernavaca, Mexico

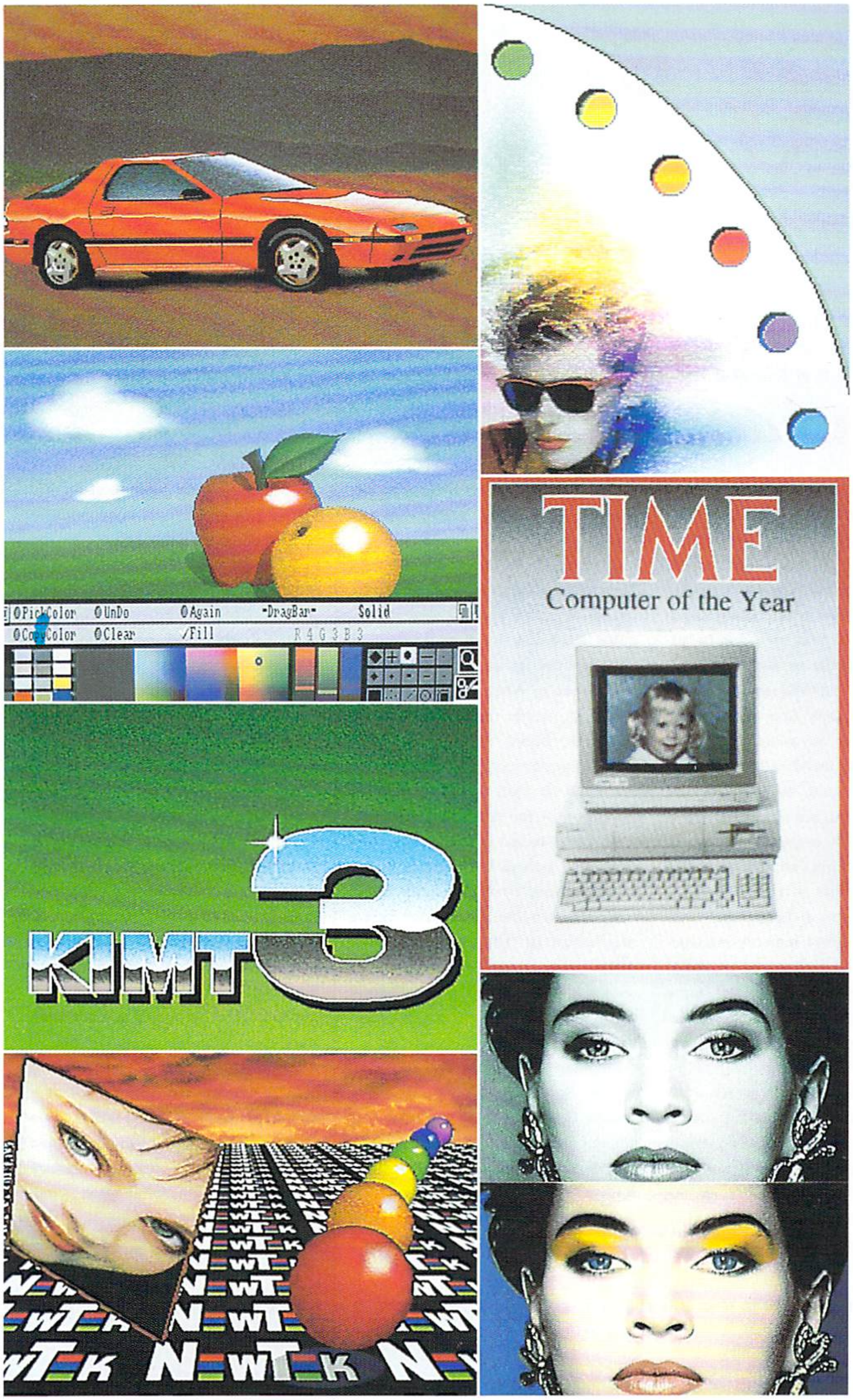
WAR GAMER

I WAS DISTRESSED to see you pick on a tiny little company's first game, namely Command Simulations' Blitzkrieg at the Ardennes ["*AmigaWorld* Top 40 Games," Nov. '88, p. 36]. What didn't you like about the game? Did you have the 512K or one-meg version? While the 512K version had its problems, the one-meg version is great! Command Simulations is the only company developing brand new Amiga war games, not ports of old games like the ones SSI and Microprose are doing. Microprose's Silent Service is a nice game, but it is virtually the same game that it was for the Apple II in 1984! I might also note that Epyx's Sub Battle Simulator allows you to sail right through land on the strategic map. (For this it was rated #20?)

Finally, you should have included several excellent shareware games, such as BattleFort, a truly amazing translation of the game BattleMech; and Bull Run, which plays as well as any board game based upon that battle. Next year, why not let the readers vote for the top 40?

Robert Lindsay
Bethesda, MD

Send your letters to: Repartee, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■



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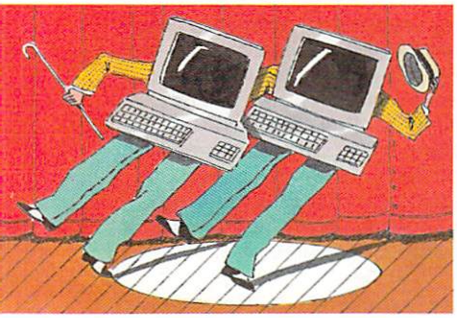
NEWTEK
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NOTEPAD

Compiled by Linda Barrett



Computer Pow-Wow

AS IS CUSTOMARY, the meeting of the tribes—also known as COMDEX—took place in Las Vegas, Nevada, last November. Commodore took advantage of the world's largest computer show to preview forthcoming products and some that may not be released for months or years.

The *Amiga 2000HD* (an A2000, an A2090A Hard Disk Controller, and a 40MB hard-disk drive) and the *Amiga 2500* (an A2000, an A2090A/40MB hard-drive system, and the A2620/2 Co-Processor Board) are official, priced at $2999 and $4699 respectively.

Also available separately, the *A2620/2* contains a 14.3MHz 68020 32-bit processor, a 68881 math coprocessor, a 68851 memory management unit, and 2MB of 32-bit, autoconfig memory. The A2620/2 turns your Amiga into a 32-bit computer, with the exception that I/O operations are still 16-bit operations.

The *Amiga 2500 UX*, which runs UNIX System V, Release 3.1 (called AMIX on the Amiga) adds two megabytes of 32-bit memory and a 150MB streaming-tape backup unit to the A2500, and replaces the 40MB drive with a high-speed 80MB drive. The system software includes text-processing utilities and software-development tools.

Other previews included the *Professional Video Adapter*, an Intel 80286-based *AT-compatible Bridgeboard*, a 20MB hard-disk system (the *A590*) that includes sockets for up to two megabytes of RAM, an InMOS T414-based *transputer* (parallel-processing computer) board, and an intelligent *high-resolution graphics board* based upon the TI TMS 34010 chip. With exception of the A590, all work only with A2000-based systems. The new graphics board features 256 on-screen colors from a palette of 16 million, a two-bitplane overlay, and a resolution of 1024 × 1024 pixels. While most of the products have a shot at a 1989 release, the transputer board probably won't be available until the next decade.

Between the show and Commodore's Software Gallery, over 100 Amiga third-party developers displayed their wares. Interesting new products included: *X11* (GfxBase), an Amiga XWindow implementation, *SpectraScan* (ASDG), *PAGErender 3D* (Mindware International), *ACAD Translator* (Access Technologies), the *Viking 1 hi-res monitor* (Commodore/Moniterm), *SuperPlan* and *video and audio digitizers* (Precision Incorporated), *Present/IT* (B.E.S.T.), *FantaVision* (Broderbund), the *Director Toolkit* (Right Answers Group), *Digi-View Gold* (NewTek), and the *4010 Remote-Control box* (Magni).

In the area of dealer support, Digital Depot of North Bergen, NJ, was promoting its Amiga graphics service bureau, offering users high-end graphic services through a dealer network.

Old friends in new guises included *Plan/IT* (formerly MaxiPlan Plus) from B.E.S.T and *PageStream* (formerly Publishing Partner Professional) from Soft-Logik. One surprise was *VIVA*, an interactive video-authoring system from MichTron. The program was announced over two years ago and then went underground.

Commodore and Amiga developers were above ground and quite visible at the primarily MS-DOS show. This time, however, none of the pinstriped chiefs of the microcomputer industry expressed any surprise that Commodore and the Amiga are alive and flourishing. *—RR*

Free Trade

THANKS TO THE new trade agreement between the U.S. and Canada, the World of Commodore made its first stateside appearance last November in Philadelphia.

The U.S. Amiga contingent gave the Canadian-based show a hearty welcome, and Amiga software and peripherals dominated the show floor. Brown-Wagh Publishing debuted **Pen Pal**, a word processor with 4096-color graphics-output support, a database manager, and drawing features. Micro-Systems Software announced **Scribble! Platinum** and **Online! Platinum**, beefed-up versions of the company's word-processing and telecommunications programs. Gold Disk spotlighted **MovieSetter**, a WYSIWYG animation program. Trade was in full swing as Free Spirit Software sold

ILLUSTRATED BY KERRY GAVIN

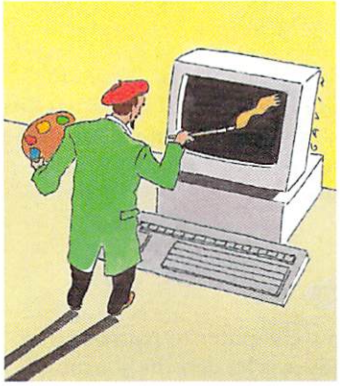
copies of **Securities Analyst**, a stock-charting and analysis program.

While the show floor buzzed with talk about Precision Incorporated's new **Official Superbase Application Developer program** (OSAN), Precision also heralded **Superbase Professional 3** (an upgrade sans dongle), **Superbase Personal 2** (a simplified version of Superbase Pro 3), and its intentions for **SuperPic**, a variable-resolution frame buffer supporting 35,000 colors.

Attendees held hardware negotiations with Comspec Communications concerning the company's **Bernoulli system**, and with Supra Corp. over its 10-meg removable-floppy drive, **SupraDrive FD-10**. In the RGB Video Creations booth, representatives answered questions about that company's professional video system, while the C Ltd folks ran off documents and treaties on the fast, compact **LazerXpress** laser printer, retailing for under $2500.

The lighter side of the Amiga was well represented, too. The ReadySoft booth was crammed with onlookers to the demonstration of the six-disk graphics adventure **Dragon's Lair.** (ReadySoft also announced its plans for a **hard-drive backup utility** and **Max**, the Macintosh emulator.) Gamers also flocked to Microdeal, where several computers were running a slew of new releases, and to the Mindware International booth to play **Charon 5**.

Watch future What's New? columns for product details. *—BGT*



Art for Competition's Sake

LIMBER UP YOUR paint programs and run your VCR through its paces. AmiEXPO wants your masterpieces for its Art and Video Contest. There are five divisions, each with a grand prize, plus plaques for the first, second, and third place finishers. For still artists, the categories and prizes are: Two-Dimensional Image (R & DL Productions' A-Pro Draw), Three-Dimensional Image (CSA's Piggyback Accelerator), and Digitized Image (Sunrize Industries' Perfect Vision). The options for videophiles are: Animation (Supra Corporation's 20MB hard drive) and Mixed Media Video (A-Squared's Live! and Elan Design's Invision).

While you may enter as many categories as you like, you are limited to three still images or two videos per division. Submit your graphics on Amiga disk and your videos and animations on videotape—¾-inch is preferred, but ½-inch will be accepted. To spur international competition, all divisions are open to PAL-standard graphics.

The official deadline is February 1, 1989. A panel of computer and fine-arts faculty members from New York colleges, universities, and art institutes will judge the entries at the spring AmiEXPO in New York (March 3-5). A reception and presentation ceremony will follow during the show. The top three pieces from each category will be displayed in a special section of the AmiEXPO Theatre.

Send enquiries for the contest's official rules and application forms to: AmiEXPO Art/Video Competition, Attn: Stephen Jacobs, 211 E. 43rd St., Suite 301, New York, NY 10017. *—LJB*

Continuing Education

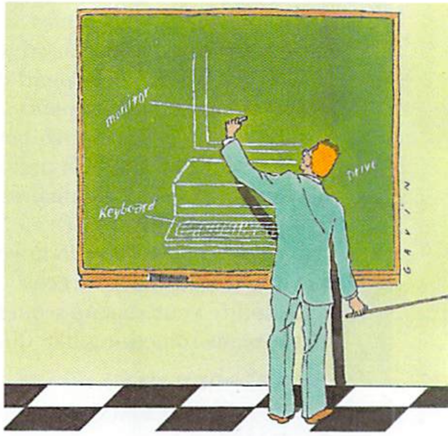
WHILE MANUALS AND reference books contain a wealth of information, they cannot offer the feedback and personal attention of a human instructor. Where can you find such individualized help for getting the most out of your Amiga?

At S & A Computer Education (4636 E. Elwood, Suite 6, Phoenix, AZ 85040, 602/894-2883), owner Ken Costello offers introductory (three hours), intermediate (six hours), and advanced (nine hours) courses in business, graphics, and music to individuals and small groups at $15 per hour. While The Computer Artist course integrates a number of programs, S & A's format allows you to learn specific programs within each category based on your needs.

A video professional with a background as a business school instructor, Ken specializes in desktop video. No matter which course you choose, you can benefit from Ken's video expertise: While you work and discuss your problems with him, Ken videotapes your monitor and conversations, so you can review your lessons at home as a refresher course.

In Silicon Valley, Patrick Bailey, Ph.D. spends his Saturdays guiding Amiga users through one of three courses: Introduction and Overview, which covers the Workbench, the CLI, commercial word processors and paint programs, and accessing the public domain; Business Applications, wherein he concentrates on spreadsheets and word processing; or Music and MIDI, in which he uses a Casio CZ-5000 to teach music programs. Classes are held from 9:00 a.m. to 5:00 p.m. in an aerospace-center training facility. As Pat demonstrates on an Amiga connected to an overhead projector, students follow along with their machines. A ½-inch stack of handouts complements each course.

The Amiga Class offers instruction for $50 per student per day; Pat will also travel to your home for private evening sessions at $20 per hour or $50 per night. An upcoming series of 1½-hour training tapes in English, Spanish, French, and German is based on The Amiga Class instruction. The tapes (each is slated to retail in the low $20s) will be offered with an optional demo disk; the first of the series is due out in early 1989.



If your are interested in lessons or tapes, you can contact Pat Bailey at The Amiga Class, PO Box 201, Los Altos, CA 94023, 415/949-4864. *—BGT*

HORS D'OEUVRES

Hints, tips, and techniques

from your fellow Amiga users.

ARCed RAM DOS

LIKE MANY AMIGA users, I use the RAM: device to store my commonly used CLI commands. Until recently, I would copy them directly into RAM:c, as this part of my now obsolete startup-sequence shows:

```
MAKEDIR RAM:C
COPY C/COPY RAM:C
ASSIGN C: RAM:C
COPY C/DIR RAM:C
COPY C/LIST RAM:C
COPY C/USHOW RAM:C
```

and so on until all the desired commands were copied into RAM:c.

When I booted my Amiga with this startup-sequence, I could hear my disk drive copying all those short files to the RAM:c directory. This caused wear and tear on the drive, plus slowed down execution of my startup-sequence. The following method works much better:

1. Use ARC to make an archive file of your most used CLI commands (i.e., DIR, LIST, TYPE, DELETE, CD, etc.).
2. Copy this ARCed file to your boot disk. I put it in the s: directory.
3. Modify your startup-sequence so that it reads something like this:

```
MAKEDIR RAM:C
COPY DF0:S/COMMANDS.ARC
  RAM:C
CD RAM:C
PKAX COMMANDS.ARC
ASSIGN C: RAM:C
DELETE COMMANDS.ARC
```

First, I make a c: directory in RAM:. I then copy the ARCed file of my most used CLI commands into RAM:c. I CD to RAM:c, so that when I use PKAX to unARC the file, the destination for the extracted files will be correct. I use PKAX (a very fast "unARCer") to extract the files in commands.ARC. After the files are extracted, I assign c: to RAM:c, so that AmigaDOS looks in RAM:c for CLI commands. Finally, I delete the Commands.ARC file from RAM:c to conserve memory.

This method is faster than the conventional way to copy the CLI commands, and it saves wear and tear on the drive.

Greg Menzel
Dellwood, MN

A500 Joystick Port Extension

IF YOU ARE as tired as I am of the inconvenient location of joystick port #2 used in dongle-protected software, buy a nine-pin monitor cable. The one I purchased is 18 inches long and not only gives me easy access when inserting a dongle, but also gives greater freedom of movement for the joystick.

Kenneth Spry
Huntersville, NC

Gronk!

THE AMIGA'S MULTITASKING ability is unequaled and almost limitless, but this marvelous feature looses some of its grace when the disk drive attempts multitasking. The drive head "gronks" loudly back and forth, endangering the sanity of the operator.

I encountered this problem most frequently when the last two lines of my startup-sequence read:

```
LOADWB
SHELL
```

The drive would begin loading Workbench and the impatient computer would demand SHELL to be loaded at the same time. The familiar "gronking" sound naturally followed. I corrected this problem by simply telling the computer to take a breather between the two commands:

```
LOADWB
WAIT 5
SHELL
```

Telling my computer to pause five seconds actually accelerated the startup-sequence by about 10 seconds!

Owen Solberg
Redding, CA

IBM-Amiga Graphics Transfer

FOR ANYONE WHO wants to transfer graphics from the Amiga to an IBM (see "Graphic Reflections," Help Key, *AmigaWorld*, Oct. '88, p. 100), there is another solution, and it's free. Take a look at CompuServe's Graphics Interchange Format (GIF). There are programs available that convert graphics to and from the Amiga, IBM, Atari, Mac, Apple, and others. Many can now be found on local bulletin boards. There are programs for the IBM PC that handle the various screen resolutions. If you are using CompuServe, just type GO PICS. While you are there, take a minute to look at the hundreds of pictures available.

David Lynn
Spokane, WA

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, Amiga-World *Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive an* AmigaWorld *surprise gift.* ■



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FRAME GRABBER

Catch it, quick!

By Louis R. Wallace

AS ITS NAME implies, Frame Grabber from Progressive Peripherals can capture an image quickly and convert it into an Amiga graphic display. You can then load the picture into a paint program, use it in video animations or desktop publishing, or print it to paper.

The system consists of a small black box with three knobs and an NTSC video-input jack in front plus four ports in the back, a power supply, an RGB cable, an adapter for the 1084 monitor, one disk, and a manual. In addition, you will need a standard Centronics printer cable and a source for the NTSC video signal, such as a television camera, video cassette recorder, or TV. Frame Grabber works with any 512K Amiga, but several of the screen resolutions are unavailable unless you have at least one megabyte of memory.

ALL HOOKED UP

Installation takes just five minutes. The instructions are very easy to follow, and all ports and connections are clearly labeled. First shut down all power to the computer. Disconnect the video cable from the monitor, plug it into the Frame Grabber, and hook up the digitizer's cable to the monitor. Finally, use the printer connector to join Frame Grabber to the Amiga's parallel printer port, and power up again.

You can operate the Frame Grabber from either the CLI or Workbench. Whether you choose color (2, 4, 8, 16, 32, 64, or 4096) or black and white (using 16 shades of gray), you can capture images in a number of screen resolutions: 320 × 200, 384 × 240 overscan, 320 × 400, 640 × 200 and 640 × 400. You can change resolutions and number of colors at any time, and opt to have the picture appear at quarter size instead of filling the screen. The software gives you full control over the palette so you can alter colors, create ranges, lock a palette in place, and save it to disk.

One of Frame Grabber's nicest features is its ability to use one monitor for both the computer image and the video signal. To switch between the Amiga display and the incoming signal, simply press the tab key or space bar. This feature lets you quickly check the camera's focus, or use the digitizer's external knobs to control the intensity, hue, and saturation of the incoming video signal (as you do with your television). The video signal will appear on screen in either 4096-color or black-and-white mode, depending on the screen format you have selected.

You can digitize an image while viewing it on your Amiga monitor; simply select the Grab menu option or press the C key (many menu options have keyboard equivalents). Frame Grabber digitizes very quickly: You can capture a non-interlaced screen in 1/60 of a second while an interlaced image takes 1/30 of a second. Frame Grabber downloads captured image data to the Amiga, where the software analyzes it and produces a display. Depending on the image's size and color settings, elapsed time from capture (when you press C) to appearance on screen ranges from five to 30 seconds. Black-and-white processing is ►



You can control color intensity via the Frame Grabber box.

Aussie JOKER POKER

$200,000 JACKPOT



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Prize includes air travel for Finalists and their guests from the major airport to Las Vegas with two days and two nights accommodation at the Golden Nugget (approx. retail value $750 each subject to departure points).	$15,000

All taxes and other expenses not specified herein are sole responsibility of winners. All winners will be notified in writing.

Aussie JOKER POKER is available for SIX major PC's

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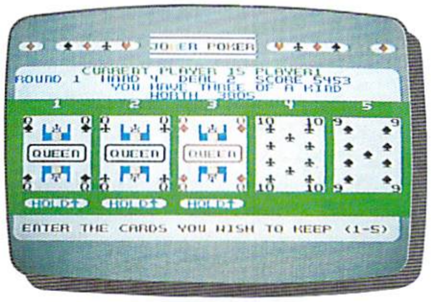
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Apple II	**$39.95**
C64/128	**$29.95**

If ordering by telephone add $3 shipping & handling and check that your PC meets the minimum hardware requirements as no cash refunds apply. Warranty is limited to free replacement of faulty products returned by prepaid post.

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1. No purchase necessary to enter.
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3. To enter, simply complete and return the the official entry form.
4. Limit five entries per family or household. Five free entry forms and full contest rules are included with "Aussie Joker Poker" or may be obtained by sending a stamped self-addressed envelope larger than 5½" × 7½" with a hand written request to: Aussie Joker Poker Contest Entry Forms, P.O. Box 22381, Gilroy, CA 95021-2381. Mail-in requests limited to one per name, household or family and must be received no later than 3/31/89. WA & VT residents need not include return postage. Full rules also available from participating Mindscape retailers.
5. Monthly entries must be received no later than the last day of the month in which a drawing will take place in order to participate in the month's drawing. Drawings will be held from December, 1988 through April 1989, inclusive. Final entries must be received by 4/30/89.
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JP31A

very quick, while 320 x 400 dithered HAM images take the longest.

You can save an entire image or just a portion (a brush) to disk as an IFF file. You can also save the data in three other formats: IMG8, which saves 12 bits of information per pixel; IP, the file format the Digi-View (NewTek) digitizer uses; and RAW, which saves all Frame Grabber data and thus generates the largest files. These formats allow you to load and display pictures in other graphics modes. The Path Master file requester, which supports every disk device on the Amiga, provides access to all files.

As Time Goes By

I had great fun with Frame Grabber's animation abilities. The software lets you create frame-animation sequences simply by combining images in a file. Because it uses the standard IFF ANIM format, you can play your sequences through a number of programs.

While you can save each frame individually, the Time Lapse Animation feature automates the process. With Time Lapse, the Amiga creates the animation by grabbing images at regular intervals—from one second to a hundred hours. I set it up to record an afternoon of leaves falling in my yard, which compressed into less than one minute of animation. With enough RAM and disk space, you can create much longer sequences.

The quality of the digitized image depends on a number of factors, but most important is the clarity of the incoming video signal. I used several video sources in my evaluation, and learned not to use a color camera for digitizing in black and white—the output is fuzzy.

To use Frame Grabber's slow-scan option you need a color wheel (none is supplied) to digitize the red, green, and blue elements of an image, which you can later combine to produce a color picture. I used the same copy stand and camera as I do with my Digi-View still digitizer. Although the results were good, they do not match Digi-View's quality.

The concise, comprehensive manual is well written. It devotes a number of pages to creating animations, as well as to the file-format structure. It also includes information for programmers interested in writing custom software.

If you want to produce quality digitized graphics and animations, look no further than Frame Grabber.

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Video source and cable required.

MIDI Recording Studio

Creativity and finances in accord.

By Bob Lindstrom

DR. T'S KEYBOARD Controlled Sequencer (KCS), a high-end software connection to synthesizers, demands not only a sizable financial investment, but vast MIDI (Music Instrument Digital Interface) knowledge to use. In performance and price, the company's MIDI Recording Studio (MRS) is a scaled-down variation on the KCS theme.

In place of KCS's 48 tracks, MRS provides eight, and instead of three main modules, MRS contains two: the Play/Record screen and the Edit screen. Where KCS encourages meticulous assembly of scores from melodic and harmonic fragments, MRS acts as a digital recorder, layering tracks.

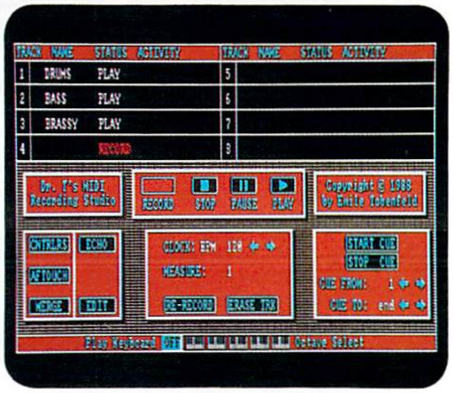
Don't make the mistake of concluding, however, that this program is only for beginners. MRS lacks the extensive features and flexibility (and complexity) of its big brother, but still lets you get down and dirty with data. The edit screen displays a complete listing of the numerical MIDI information, so you can individually alter velocity values or hand tool sysex (*sy*stem *ex*clusive) messages to get at your synthesizer's unique performance potentials.

Initially, MRS turns your Amiga into a digital tape recorder that can record everything you play on your MIDI keyboard. Once you have saved those inspired first impressions to disk, MRS makes your Amiga a word processor for notes: You can cut and paste portions of music, change volume levels and balances, rewrite portions of the composition, and fix any mistakes that might have crept into your virtuoso playing.

And a One, and a Two

Composition begins on the Play/Record screen, a module that simulates an eight-track tape recorder. Click the Record button and MRS will begin recording with your first keystroke. All tracks must be equal in length to the first one you record; when you reach the end of a track, MRS can automatically switch to the next.

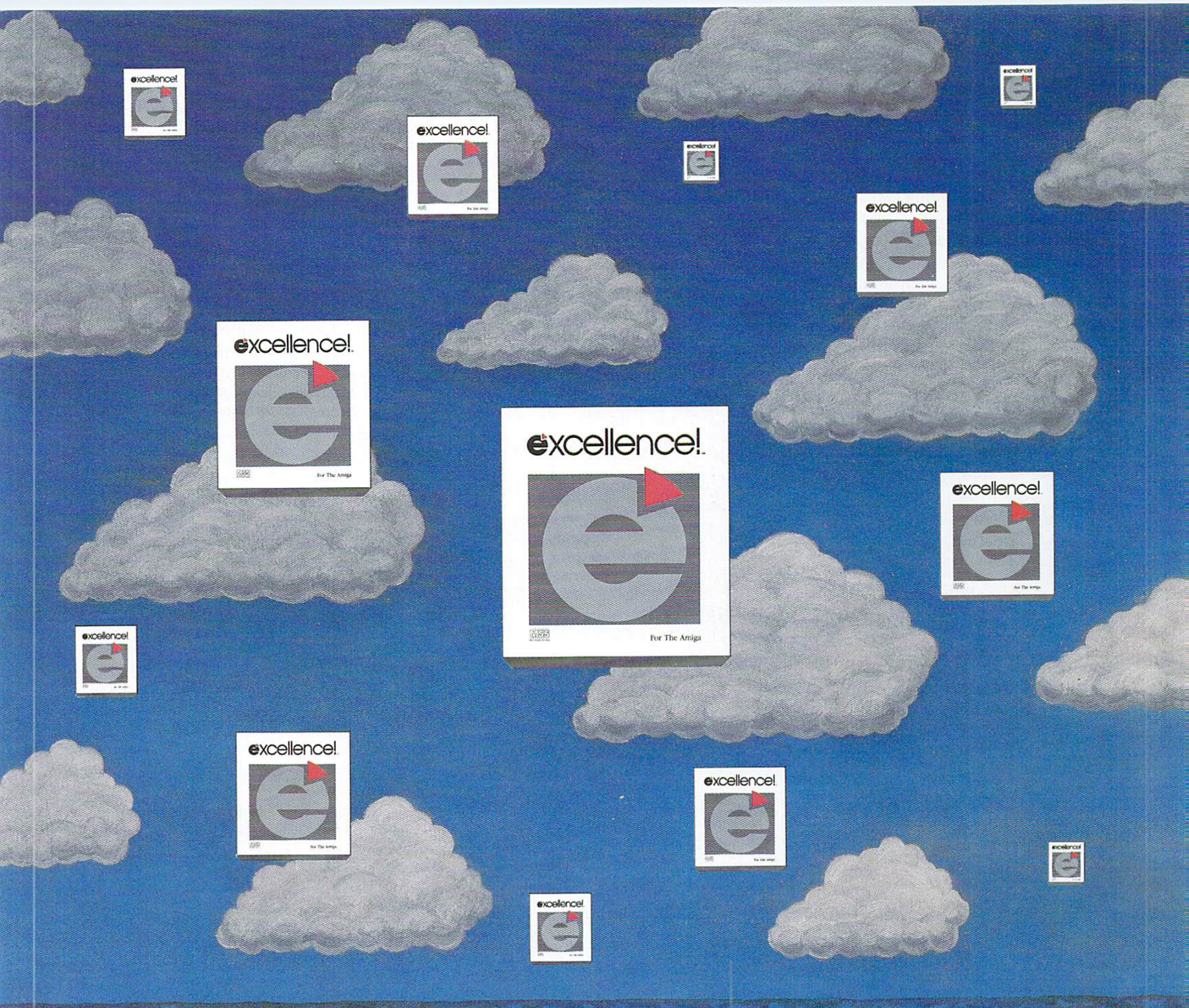
If the results aren't what you had hoped for, simply erase the track or re-record it. For altering or playing back sections of a composition, the Start/Stop Cue option lets you repeat or record a section again and again.



The Play/Record screen is where things begin.

In addition to indicators for the MIDI channel and status (play, record, and mute) of each track, the Play/Record screen contains gadgets you can click to record controller and aftertouch information—information that can add expression to music but can overload memory or clog the MIDI data flow. Other buttons let you merge or echo incoming data to the MIDI Out port (Merge sends the data directly to the port, while Echo rechannels it before passing it along).

I commend Dr. T's for giving MRS access to the Amiga's internal voices, and for integrating IFF-format instruments (when playing internal voices, you can load a set of IFF instruments into RAM and assign each a MIDI channel, then save the banks to disk). MRS can even accept note input from the computer keyboard. The keypad is limited to one ►



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of five octaves, though, and the Amiga keyboard isn't a realistic option for music entry. Even if you are on a budget, you should spring for a synthesizer (they're available for under $200)—it will give you greater flexibility and sound.

The Edit screen, similar to the track module in KCS, is the fine-tuning place. A window displays all numerical MIDI data; to cut and paste, you simply highlight a section with the mouse and select your option. MRS has a full range of editing features as well as the ability to alter specific events in each track. Several options call up menus for auto-correcting choppy rhythms (quantizing), copying tracks, setting default options, transposing pitches, rhythms, and volume levels, and more.

The Beat Goes On

Though the eight-track environment will prove a drawback for very ambitious composers, many will prefer it to 48- or 64-track sequencing. The tape-recorder concept is easy to grasp, and the controls and options are pared down for elegance and convenience. There is one case, however, where I found the streamlined design of MRS less convenient than KCS. KCS's Open Mode lets you combine and recombine tracks to reorder segments, move tracks to different keys, or play a rhythm part under various melodies, for instance. The lack of a similar feature in MRS means you must carefully change each track individually.

What distinguishes MRS from the other MIDI programs offering a similar work environment is the fact that you can grow with it. The record/play screen provides an intuitive and spontaneous creative environment, and the edit screen lets you get as detailed as you want in your manipulations. As you grow more confident and knowledgeable, you can start number-crunching tunes to life by editing specific MIDI events—even compose by typing MIDI events directly into the edit window. While many Amiga musicians will never outgrow MRS, Dr. T's offers an upgrade to KCS for the retail-price difference between the packages (KCS can readily use MRS files).

MIDI Recording Studio is a first-rate product at an affordable price.

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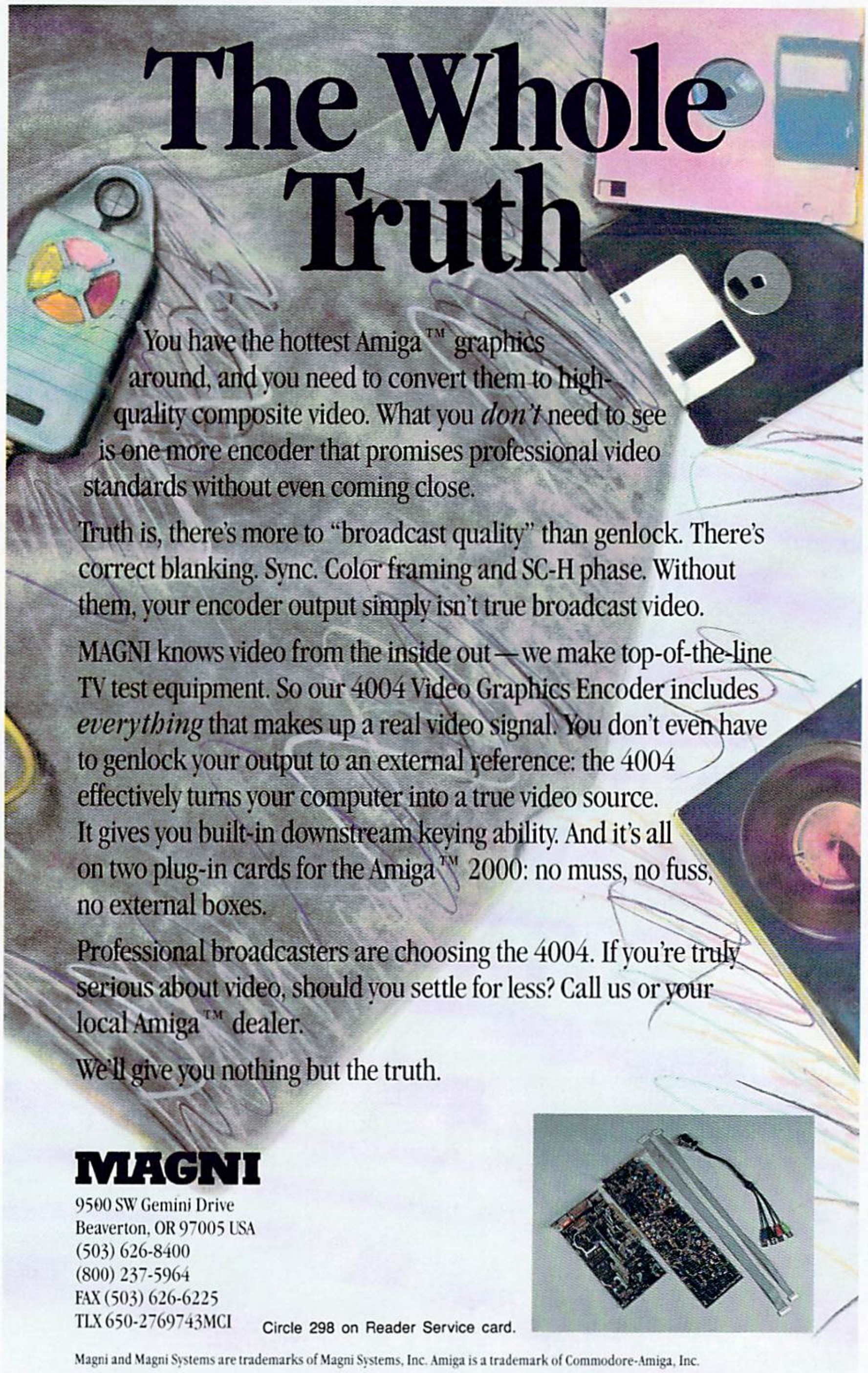
ComicSetter

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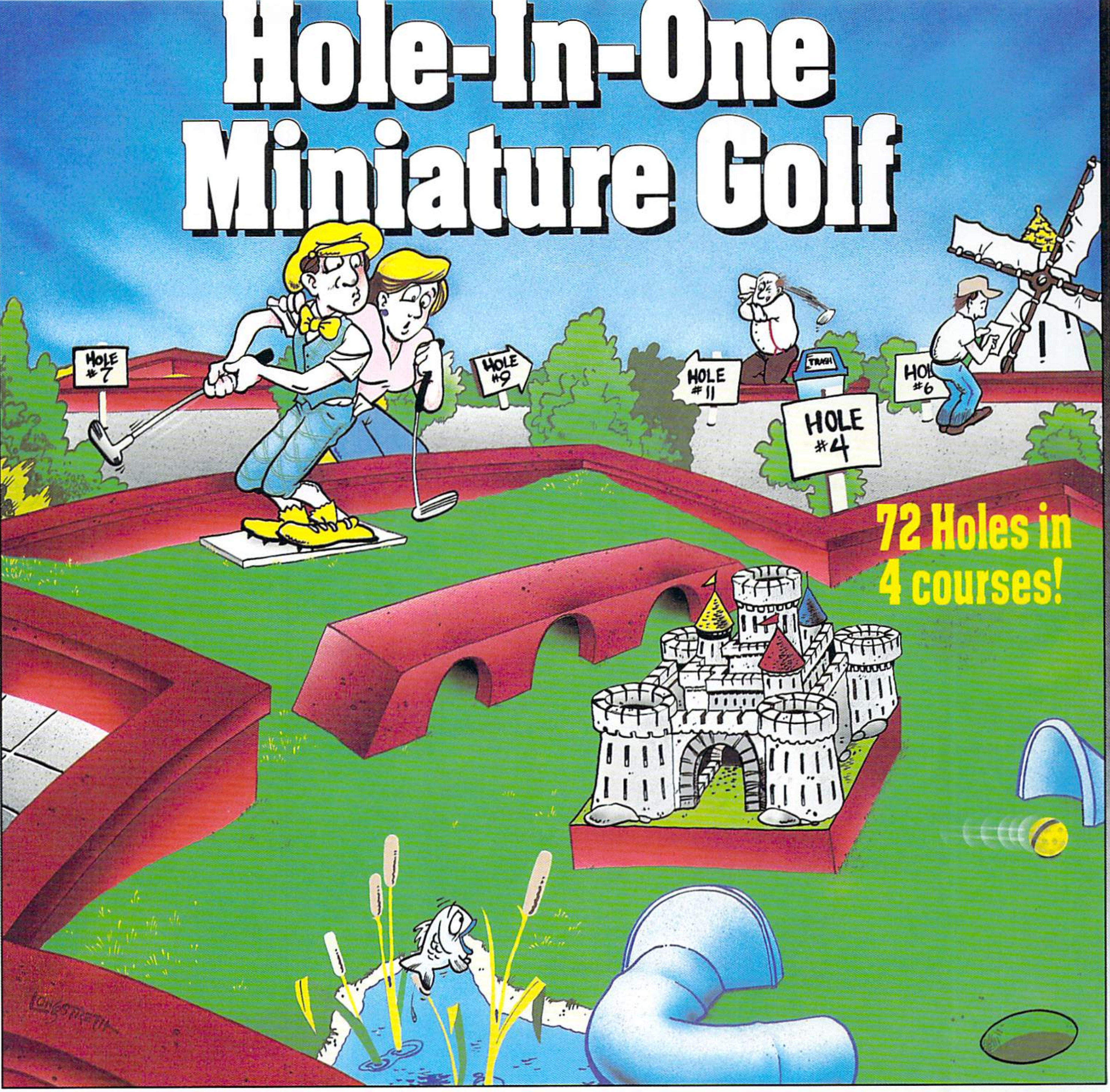
By Dodson Yaple

COMICSETTER'S PACKAGING makes the product look like a game. That's what gets it past your defenses. Oh, sure, you become suspicious when it demands to be hooked up to a printer, but the stuff it cranks out seems so devoid of redeeming social value that you're reassured. What could possibly be

Continued on p. 86



Hole-In-One Miniature Golf

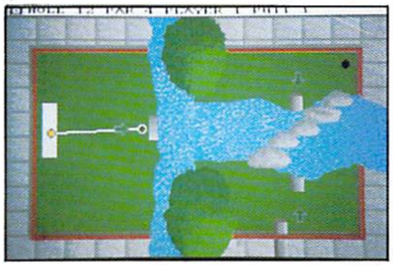


Hole-In-One Miniature Golf combines digitized sound, quality graphics and superior playability with realistic ball play to give you the best miniature golf game made!

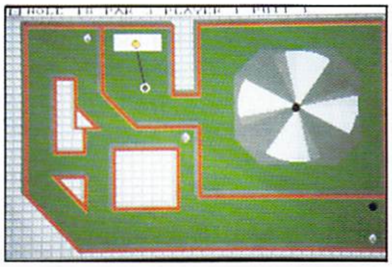
Utilizing the mouse (point and click) interface, DigiTek Software has created a game that will challenge adults yet is so simple to play that children can play as easily as adults from the very first game. This game supports up to 4 players making it one of the few games that the entire family really can enjoy together.

Hole-In-One Miniature Golf is 72 Holes of pure fun in 4 separate courses that give you classic miniature golf as well as hilarious fantasy holes. The digitized sounds of the crowd, the ball, and special effects all add to the fun and realism.

Another revolutionary game from the company that brought you Vampire's Empire, Amegas and Hollywood Poker — DigiTek Software!







Amiga versions shown here

DigiTek Software

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Tampa, Florida 33612
(Programmers wanted — write us!)

Circle 97 on Reader Service card.

BASIC By The Numbers

Keep your eye on the bubble as you learn to make data more comprehensible by sorting it.

By Bob Ryan

68 Catching Up

LAST MONTH, you learned how to save data in RAM in Amiga Basic data files and how to retrieve it. To demonstate this, I created two programs that formed the outline of a simple address book program. Here are the input and file-reading programs from last month:

```
REM Address Book
REM Input Routine
OPEN "Address" FOR APPEND AS #1
GetData:
  CLS
  INPUT "Last Name: "; last$
  IF last$ = " " THEN Finish
  INPUT "First Name: "; first$
  INPUT "Street Address: "; street$
  INPUT "City: "; city$
  INPUT "State: "; state$
  INPUT "Zip: "; zip$
  INPUT "Phone #: "; phone$
  WRITE #1, last$, first$, street$, city$, state$, zip$, phone$
  GOTO GetData
Finish:
  CLOSE #1
END
```

```
REM Address Book
REM File Reading Routine
OPTION BASE 1
DIM lst$(100,7)
OPEN "Address" FOR INPUT AS #1
WHILE NOT EOF(1)
  rec = rec + 1
  FOR fld = 1 to 7
  INPUT #1, lst$(rec,fld)
  NEXT fld
WEND
CLOSE #1
```

69 Ordering Data

THE FILE-READING program listed above takes the data created with the input routine and saved in the file called Address and reads the data into a two-dimensional array called lst$. This array stores seven different pieces of information on up to 100 different people. When data is read into lst$, the program stores it in the order it was entered. You can change the order of the data in lst$ by sorting it. While I'll show you how to order the data alphabetically by last name, you can sort the data by any criteria, such as consecutive zip codes or telephone numbers.

In lst$, the first field of each record is the person's last name. Thus, the last name of the first person in the database is stored in the first field of the first record. You can view it by entering:

```
PRINT lst$(1,1)
```

You can see the last name of the second person by entering:

```
PRINT lst$(2,1)
```

Many methods exist for sorting records alphabetically. In this example, I'll use the relatively inefficient bubble sort. While this method is slower than others, it is easier to understand. ►

New Breakthroughs from Incognito

OPTICKS

The most powerful ray-trace program of its time. This easy-to-use package creates spectacular results. A flowchart-like menu takes you step by step when designing complicated scenes. Opticks also multitasks nicely while it creates its breathtaking images. Many unique features make Opticks the obvious choice!

Highlights of Opticks

- Unique surface mapping actually maps surfaces rather than colors.
- Render images for use with Haitex's X-specs 3d glasses.
- 24 bit file save for output to external imaging devices (Slide recorders, hi-res graphic boards, etc.).
- Lighting types include Global, Distant, Point, and Spotlight.
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- Flexible controls allows the simulation of surfaces like plastic, metal, and glass.
- IFF HAM display and save.
- Stop and resume a ray-trace in progress.
- Render to disk in any screen (X-Y) resolution.
- and much, much more!



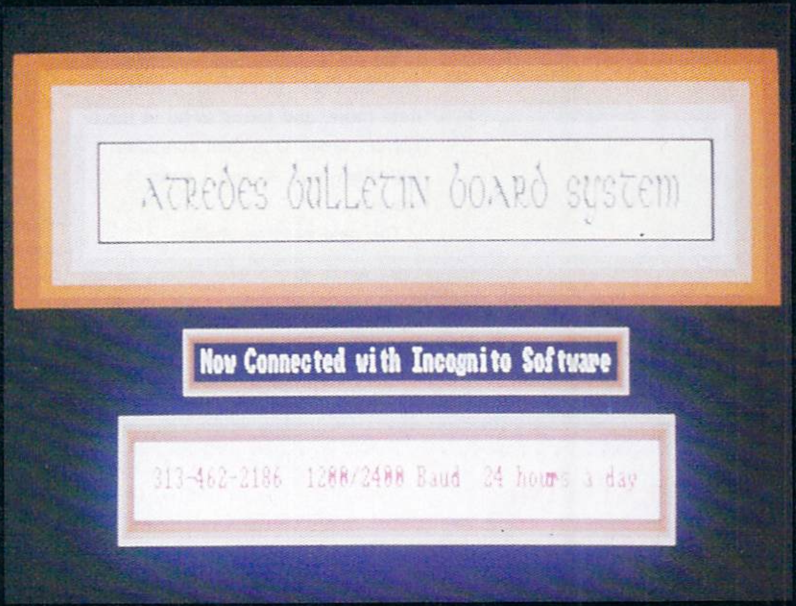
Room picture: Image designed and rendered on a 512 K Amiga. Displayed on a Targa™ system.

ATREDES BBS V1.1

Written specifically for Amiga, Atredes is the most advanced bulletin board ever written. Atredes has the power to use most standard drawing function over the modem (including IFF brush, freehand, line mode, box modes, floodfill, etc). Atredes is only limited by the size of your system. 255 access levels, full text parser, personal file transfers, and support for the new skypix™ protocal.

Key Features

- Compiled menus allow full customization of the system. Allows you to arrange Atredes into multiple isolated sub-systems. (NEW!)
- Z-modem (NEW!), Y modem, Y modem batch, and X-modem protocals supported.
- Command Stacking. (NEW!)
- Full SkyPix gadgets. (NEW!)
- Includes SkyPaint, a fully integrated drawing package for designing SkyPix online graphics!
- Built-in terminal
- An Elsewhere menu selection allows control to be passed to other programs. (i.e. Online Games, Databases, etc.)
- You can create online questionnaires (Multiple choice). (NEW!)
- Remote control over most functions.



Actual graphics as viewed over the modem.

INCOGNITO
Software

Circle 229 on Reader Service card.

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70 Bubbling Data

IN ESSENCE, a bubble sort compares consecutive pieces of data. If the pieces are not in the specified order, they are swapped. Thus, if the last name in record two alphabetically preceeds the last name in record one, the sort swaps the records. The sort routine then checks record two against record three, record three against record four, and so on. When the sort reaches the bottom of the list of records, it returns to the beginning to make another pass. The process repeats until the routine completes a pass without swapping any records, indicating that the records are ordered correctly. To understand why multiple passes are needed, consider the following short example.

A four-element array contains letters of the alphabet. Initially, the contents of the array is:

C B D A

After one pass of a bubble sort, the contents are:

B C A D

(C and B are compared, determined to be out of order, and swapped. C, now item two, is compared with D, item three, and found to be in the correct order. D is then compared with item four, A, and a swap is made.)

The next pass results in:

B A C D

Finally, one more pass yields:

A B C D

Subsequent passes will not result in any swaps, meaning the sort is complete. A bubble sort normally must make many passes through a list of records before all the records are ordered.

Here is the bubble sort for the address book. The example assumes that you have already created an address file with the Input program and read it into lst$ with the File-reading program. Append the following to the File-reading program. The number of the last data item, as determined by the File-reading program is stored in the variable rec.

```
Bubble:
  flag = 0
  FOR x = 1 to rec - 1
  IF lst$(x,1) > lst$(x + 1,1) THEN
    FOR z = 1 to 7
      temp(z) = lst$(x,z)
      lst$(x,z) = lst$(x + 1,z)
      lst$(x + 1,z) = temp(z)
    NEXT z
    flag = 1
    END IF
  NEXT x
  IF flag = 1 THEN Bubble
CLS
FOR x = 1 to rec
  FOR fld = 1 to 7
  PRINT lst$(x,fld); " "
  NEXT fld
PRINT
NEXT X
END
```

The heart of the sort is the IF. . .THEN statement that sees if the last name of the current record is greater than the last name of the record immediately following. Although the greater-than operator (>) works normally with numbers, you can use it to compare text data because text is represented numerically inside your computer by ASCII codes. The letter "A" has the lowest ASCII code, while Z has the highest. When comparing text, the greater-than operator compares the first characters of the strings; if these are equal, it moves to subsequent characters until it finds a difference or it runs out of characters.

If the first last name is greater than the second (indicating that the first is lower alphabetically than the second), the records are swapped and the flag is set to 1. The routine stores the first record in a temporary array while the second overwrites the first. The first record is then moved from the temporary array to the place formerly occupied by the second record.

When the sort finishes a pass through the array, it checks the flag. If the flag is 1, the program performs another pass. If the flag is 0, meaning no swaps were performed and the array is in order, the program passes to a routine that displays the contents of the newly sorted array.

71 Next Time

A BUBBLE SORT is a lot to digest at once; work through my short example if you don't understand what is going on. Next time, I'll show you another data manipulation function, the search function. Address your questions and comments to BASIC By The Numbers, AmigaWorld, *80 Elm St., Peterborough, NH 03458.* ■

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The Brave NOW World of Video

With such breakthrough special-effects hardware as NewTek's Video Toaster soon to come on the market, the future of Amiga video may already be here.*

By Bob Ryan

In a downtown Topeka office building, a few blocks south of the company proper, NewTek maintains a suite of offices devoted exclusively to research and development. Nicknamed Alcatraz, the suite is off-limits to most outsiders and much of NewTek. It was here, in the company of NewTek's Tim Jenisen, Paul Montgomery, and Brad Carvey, that I had come to discover the answer to the question that has been asked throughout the Amiga community for over a year: "Is the Toaster for real?"

In a sparsely furnished office, an Amiga 2000 sat on a table surrounded by test equipment. In its video slot sat a single printed-circuit board connected by one wire to a video camera, by a second wire to an oscilloscope, and by a third to a video monitor. On the monitor screen, the input from the camera was being manipulated to produce some astounding effects. Watching the pyrotechnics on the screen, I smiled to myself and thought, "Yes, Virginia, there is a Video Toaster." ►

**Editor's Note: Here in the Hardware section of our feature on Amiga video special effects, we have chosen to focus on several brand-new items that have just arrived or will arrive soon on the Amiga market. At least in one case, we feel this equipment may be of such revolutionary, "breakthrough" significance that it should take precedence as the subject of our coverage over existing video hardware already on the market. And so it is that the much talked-about and eagerly-anticipated Video Toaster from NewTek becomes the primary topic of our feature.*

Not to neglect readers looking for currently available video-effects hardware, we refer them to the "Video Roundup" sidebar accompanying this article for previous AmigaWorld *articles and reviews.*



THE VIDEO TOASTER is a real-time video special-effects generator from NewTek, the company that produces the popular Digi-View video digitizer. The Toaster accepts a video image as input and transforms the image in myriad ways under software control. It fits into the video slot of the Amiga 2000. Scheduled for release in February 1989, the Video Toaster could be a breakthrough product. It is not inconceivable that many people will buy the Amiga 2000 just to use the Toaster.





This story is not a review of the Toaster. The editorial policy of *AmigaWorld* dictates that we publish critical reviews of products only after their actual release date, i.e. after they have shipped. Yet, because of the great interest our readers have shown in it, we decided that an advance look at the Video Toaster was warranted.

TOASTER INS AND OUTS

The Video Toaster consists of many integrated elements, each performing a vital task in the production of the Toaster's effects. Because the Toaster accepts an NTSC (National Television Standards Committee) video signal, the first major element in the system is a video digitizer that transforms the video image into the digital information that the Toaster can manipulate. The digitizer works in real time, capturing each video field in one-sixtieth of a second (two fields make up one video frame).

The images produced by the digitizer cannot be

Special-Effects Systems for the Amiga

The Toaster is one of a number of hardware-based special-effects systems available or under development for the Amiga. For instance, many Amiga genlocks, such as *SuperGen* ($750) from Progressive Image Technology/Digital Creations, contain controls that let you fade the computer image over the external video image. This effect is in addition to the primary purpose of these units, the synchonization of an external video signal with the Amiga's graphics output.

Just on the market from Elan Design is *Invision*, which offers many of the same effects as the Toaster—although it performs its magic inside the Amiga's standard display hardware and not in a specialized frame buffer. In conjunction with the *Live!* digitizer from A-Squared Distributions, Invision lets you capture a sequence of images in near real time and perform effects on the sequence. The effects include mirror, mosaic, blinds, nuke, strobe, and more.

Because of the limitations of the Amiga display hardware and of Live!, Invision cannot match the colors and resolution of the Toaster. Yet, at $129, with another $295 for Live!, it offers a relatively inexpensive system for producing video special effects—and, of course, it is available *now*. (A review of Invision appears on p. 88 in this issue.)

The *Professional Video Adapter* (PVA) is a two-board video system previewed by Commodore at COMDEX/Fall in Las Vegas this past November. Developed by the Computer Graphics Laboratory of the New York Institute of Technology, the PVA captures a frame of video from an external source, stores the frame in a buffer where you can modify it, save it to disk, digitize it into the Amiga's native display hardware, or display it overlayed with Amiga graphics using its built-in genlock. The genlock also allows you to synchronize Amiga graphics with the external source without using the buffer.

The Computer Graphics Laboratory is also developing *PVA Paint*, a paint program that works on the image stored in the PVA buffer and allows you to use the millions of colors available in NTSC video. It will include features found in professional video paint boxes.

MARKET WEATHER REPORT: CLOUDY

As part of the Commodore Technology Preview at COMDEX, the Professional Video Adapter—like other products previewed there—is only under development and may never be released generally, according to Commodore officials. Dr. Henri Rubin, Commodore International CEO, however, indicated that he expected all the previewed products to be released eventually. Commodore did not commit to either a price or a release date for the PVA.

Also on the horizon is a product called the

viewed with the Amiga's display hardware so they are stored in and displayed from the Toaster's memory. It is here, in the Toaster's display buffer, that the video images are altered under software control to produce the Toaster's effects. The transformed images are then encoded (using Y-IQ encoding) into a broadcast-quality RS-170A video signal. This signal can be output by itself or over a second video input using the Toaster's built-in overlay genlock. This video signal can then be displayed on an NTSC monitor, recorded on videotape, or even broadcast over the airwaves or on a cable system.

Limitations exist on both the input and output side of the Toaster system. As shipped, the Toaster will not be able to accept the output from a home VCR as input. These signals vary so widely from the NTSC signal that the Toaster cannot sync with them. In the very near future, NewTek plans to offer a sophisticated time-base corrector allowing home VCRs to be used as input into the Toaster.

The mix of signals that makes up the output from the Toaster also has some limitations. Standard Amiga graphics (including HAM (hold-and-modify) and half-brite images) cannot appear on the same horizontal scan line as Toaster-manipulated images. To display both Amiga graphics and Toaster images, you must divide the screen into two horizontal slices—one displaying Amiga graphics, the other Toaster effects. Note also that the Amiga graphics slice is output using R-Y, B-Y encoding, which is not normally ac- ►





To slide into a new scene with the Toaster, try a Push over Vertical Blinds.

"*Black Box,*" which is under development at Progressive Image Technology and Digital Creations. The product is described as an all-in-one video solution. It is a dual-channel, frame-synchronous time-base corrector that can synchronize two video sources and overlay one on the other. It includes the ability to perform fades, dissolves, A/B rolls, and A/B editing.

With standard memory, the "Black Box" will work in broadcast resolution. With additional memory, it will handle Super VHS (SVHS) resolution. Expected to accompany the hardware is a paint system and an effects generator. Future enhancements will include a titling system. It is expected to work with all Amiga models.

Digital Creations expects to announce the product at the National Association of Broadcasters conference in April and to ship the product at that time or shortly thereafter. As of this writing, no price has been set for the product.

Product Information

SuperGen
Progressive Image Technology
distributed by Digital Creations
1333 Howe Ave., Suite 208
Sacramento. CA 95825
916/344-4825
$749.95

Invision
Elan Design
Box 31725
San Francisco, CA 94131
415/621-8673
$129

Live!
A-Squared Distributions
6114 La Salle Ave., Suite 326
Oakland, CA 94611
415/339-0339
800/452-4445
800/626-9541 in CA
$295

Professional Video Adapter
Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
215/436-4200
No release date or price available.

"Black Box" video project
Progressive Image Technology
distributed by Digital Creations
see address above
Scheduled release approx. April '89.
No price information available. □

—BR



The famous face of NewTek's "Maxine Headroom" takes on a new look with the Toaster's mirror effect.

ceptable for broadcast. Both the Amiga graphics and Toaster slices, however, can overlay the second video input.

VERY SPECIAL EFFECTS

The Toaster performs its magic in its display buffer. Here, the custom gate-array chips transform the digitized input images into the altered output images. The instructions controlling the process are generated by special software running on the Amiga. As the Toaster runs in real time, each transformation must take place in less than one-sixtieth of a second.

At the time of this writing, over a dozen effects had been programmed for the Toaster. including page flips and turns (which rotate the image around x- and y-axes, respectively), spheres (which map the image onto a sphere), and mosaics (which divide the screen into four, eight, or sixteen or more parts and replicate the image into each part). A scroll effect lets you scroll an image on and off the screen, while zoom allows you to zoom in on a part of an image or zoom out and shrink the image. Transposition effects let you move an image anywhere on the screen, while pushes let you move an image on the screen from anywhere.

A mirror effect permits you to copy one half of the image onto the other half of the screen. In combination with mosaic, it lets you produce a kaleidoscope effect. Blinds lets you divide the image into vertical segments that you can rotate left and right. Moving blinds lets you push images in vertical segments. Pixelization gives the image a blocky, computer-generated look, while the fish-eye effect allows you to simulate a superwide-angle lense. Any of these and other preprogrammed effects can be used in sequence to create more complex effects.

TOTAL TOASTER CONTROL

You can control the Toaster and the effects it produces on four levels. The easiest control is provided by the software that comes with the Toaster. This lets you choose effects by clicking on icons corresponding to the supplied effects. The next level of control involves the use of script files. Scripts offer you finer control over a sequence of effects by giving you precise control over the speed, duration, and other parameters associated with particular effects.

A third level of control is provided by ATL, short for A Toaster Language. ATL will be available for people who want to write their own effects for the Toaster. NewTek plans to offer a support system to third-party Toaster developers.

The most intricate level of control is to write new effects at the assembly-language level. This gives you the greatest degree of control over the Toaster, but it also requires the most time and expertise.

Although the software I saw demonstrated performed effects only, NewTek has further software plans for the Toaster. Due to be finished about the time the Toaster ships, and perhaps to be bundled ►

The Missing Link...

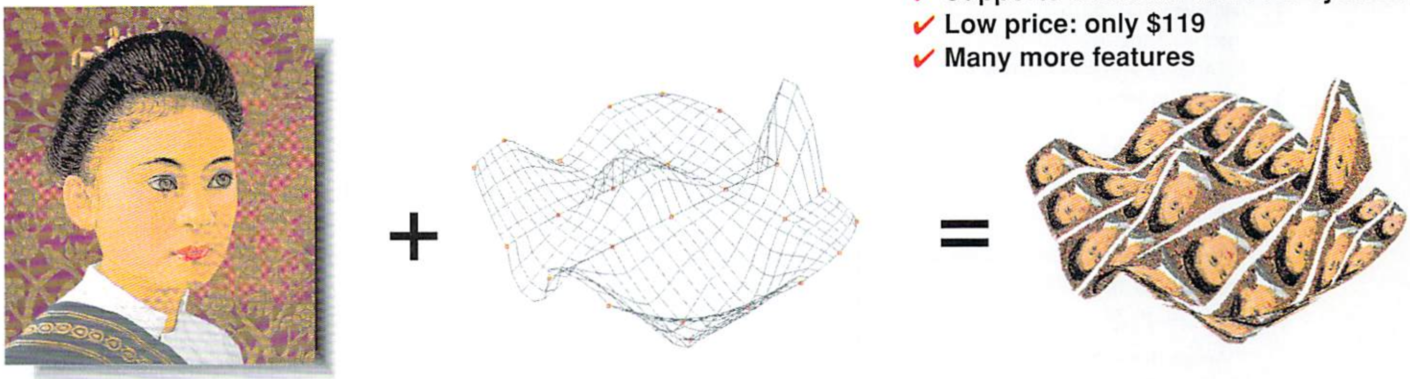
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AmigaWorld Video Roundup

The articles and reviews from previous issues of *AmigaWorld* cited below may be useful to those interested in video hardware used to generate special effects. In addition to these, consult our annual Index of Articles and Reviews (published in each January issue) for other video material. The Graphics/Video section of our annual Hardware Buyer's Guide provides another source of possible information. The current guide appears in the March '88 issue, p. 48, although our updated version with much new material will appear next month in the March '89 issue.

Articles previously published in *AmigaWorld* with particular relevance to video hardware include:

"Desktop Video"
By E. E. Eric Erzinger
Jan./Feb. '87, p. 16

"Videot's Delight" (Amiga video hardware and software)
By Wayland W. Strickland
Mar. '88, p. 22

"Amiga Home Video"
By D. L. Richardson
Mar. '88, p. 42

"The Amiga Home Video Companion"
By Wayland W. Strickland
Sept. '88, p. 40

Reviews of interest might include:

Digi-View (NewTek)
Reviewed by Stan Kalisher
Jan./Feb. '87, p. 76

Frame Grabber (Progressive Peripherals)
Reviewed by Louis R. Wallace
Feb. '89, p. 14

Live! (A-Squared Distributions)
Reviewed by Ted Salamone
July '88, p. 14

Perfect Vision (SunRize Industries)
Reviewed by Chris Dickman
June '88, p. 80

ProGen (Progressive Peripherals)
Reviewed by Wayland W. Strickland
October '88, p. 78

SuperGen (Progressive Image Technology/ distributed by Digital Creations)
Reviewed by Wayland W. Strickland
July '88, p. 66 □

with it, is a video-titling program that renders directly into the Toaster's frame buffer. Thus, the same effects used on the input image can be used on the titles.

Perhaps a year away from completion is an NTSC paint program that can take advantage of the millions of NTSC colors. NewTek hopes to incorporate all the features of the Quantel Paintbox into its paint program for the Toaster. Further along, NewTek hopes to produce a 3-D graphics program that will render directly into the Toaster's frame buffer. Release of such a program depends, however, upon the availability of relatively cheap RAM chips for expanding the Toaster's memory.

TOASTER FUTURE/TOASTER PRESENT

In addition to software, NewTek plans to add follow-on hardware products to the Toaster system. As was mentioned above, NewTek plans to release a time-base corrector allowing the Toaster to accept home VCR input. Of course, the Toaster can always send its output to a VCR. NewTek also plans to release additional RAM for the Toaster to allow the storage of longer video sequences and the rendering of animations.

In addition, NewTek is planning a switcher board for the Amiga 2000, which will enable you to attach multiple inputs and outputs to the Toaster and to choose between them under software control. It will also allow for effects such as dissolves and wipes. The switcher holds out the possibility of using your Amiga as a video-editing controller by possibly controlling the operation of the attached video decks via a serial connection.

Both the cost and the shipping date of the Toaster ultimately depend upon one thing—the price and availability of RAM chips. If RAM chips are as expensive and as hard to come by in early 1989 as they were in November 1988, when this was written, the Toaster may not ship until March or April 1989, and may cost nearly $1500. NewTek hopes, however, that reports of improvements in RAM pricing and availability carried in industry trade journals are correct, and that they can produce the Toaster sooner (for a February release) and cheaper (under $1000).

You cannot evaluate a product from a demonstration—the test of the Video Toaster will come when it is released for sale. One thing, however, is certain: The Video Toaster is an exciting and innovative product. Whether it is a successful one depends upon how well it satisfies the needs of professional and amateur videographers alike.

For further information about Video Toaster, contact:

NewTek
115 West Crane St.
Topeka, KS 66603
913/354-1146
800/843-8934 ■

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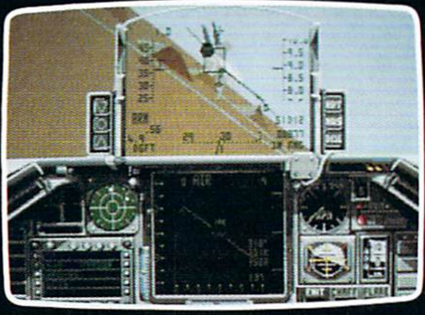
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"And for Special Effects, The Nominees Are . . ."

AW goes on an Oscar hunt to find six video packages—all priced at under $200—offering a wide and varied range of special effects to the Amiga videographer, from beginner to advanced user.

Steven Spielberg does it. George Lucas does it. Madison Avenue advertising producers do it. And now you can do it too. Do what? Why, create those nifty, perspective-altering special video effects that send people to the movies and sell products to consumers, that's what. And, more importantly, you can *afford* to do it—with video software selling for about $100–$200.

Hollywood horror and sci-fi flicks and network advertisements, of course, employ high-priced video-switching equipment in sophisticated studios and editing suites to get the job done. That kind of hardware runs into the hundreds of thousands of dollars. (You *can* rent such equipment, but even there the going rate is about $350 per hour!) But now video amateurs can do some pretty fancy, professional-looking doctoring up of their favorite home movie productions or videotapes. Add some fairly inexpensive, commercially available software to your Amiga and your home video equipment, and you're in business—without going out of business to buy it!

The six Amiga special-effects video programs presented here all provide the means for you to create special effects, or "transitions" (the transforming of one picture into another—see the "Glossary of Special Effects Terminology" for a list of the more popular of these transitions). Some offer more numerous variations, better control, and greater ease of use than others. Some are best suited to beginners, while others may fit the requirements of intermediate or advanced users. The important consideration is to match a program's capabilities with your own needs and skills. After presenting all six programs, I will discuss their relative merits and try to help you make that match.

Editor's Note: Consult the Product Information box accompanying the article for manufacturers' addresses, telephone numbers, and suggested retail prices. Also, some of the programs presented below have been reviewed previously in AmigaWorld. *In such cases, the reviewer's name and the issue and page number are cited at the end of that section should you wish to read more about the program.* ►

By Wayland W. Strickland

ILLUSTRATED BY BOB SCOTT

Lights! Camera! Action! Aegis Development

Lights! Camera! Action! (LCA), written by Gary Bonham (Video Titler), is an easy-to-use desktop video program designed to integrate IFF (Interchange File Format) pictures and "anim" (Aegis/Sparta) animations with music and instruments from "Sonix" (Aegis) in order to create a "polished" presentation. LCA has an easy-to-use interface that permits exact control of music or sound effects, video, and even frame number. Sporting over 40 special-effect transitions, LCA can perform flips, dissolves, fades, and wipes in nine different directions, as well as some impressive special effects, such as dribble and zig zag.

LCA also supports the SuperGen (Digital Creations/$750) genlock's ability to provide software control over fader bars. Extremely smooth dissolve effects are very easy to achieve with LCA. The program also strongly supports overscan. LCA uses screen sizes of 384 × 480 interlaced mode and 768 × 480 in high resolution; both are ideal for broadcast applications.

LCA is not copy protected and installs easily on a hard drive for increased efficiency. Both halfbrite and the PAL (European) television system are supported. LCA requires at least one megabyte of RAM (2MB is recommended) and is shipped with a sample art disk and a public-domain player program so that you can distribute your work. Accompanying LCA is a special utility program called GrabAnim, which will multitask with other software, such as a paint program, and permit you to save the screen to a file in the anim format. This feature allows you to make simple animations directly from a paint program by moving a brush, recording the frame, and then repeating the procedure over and over, until you have attained the end position. Then, simply close the file and use the play anim program to play back the "finished" animation.

PAGEflipper Plus F/X Mindware International

Perhaps the most versatile special-effects package on the market, PAGEflipper Plus F/X allows the user to create elaborate keyboard-controlled animations with true interactive capabilities. In addition to these interactive capabilities, PAGEflipper Plus F/X offers 76 built-in transitions, as well as the the ability for users to create their own transitions. Unique built-in transition effects of this program are sawtooth and mosaic.

Absent from PAGEflipper's user interface are pull-down menus and many other Amiga "niceties." The result is that there is no wasting of precious chip memory that could be more productively used elsewhere. The familiar mouse and gadgets, however, are included to speed the process along. In addition, there is a very good on-line help feature.

All screen transitions are very smooth in all resolution modes, including HAM (hold-and-modify) and HalfBrite. PAGEflipper enables the user to spread animation across several disks for increased flexibility. The program is compatible with anim formats introduced by Aegis Corporation; in fact, it incorporates a utility program permitting pre-existing anims to be converted into IFF images and used in any PAGEflipper Plus F/X animation.

PAGEflipper's manual is chock full of information covering each and every feature in a detailed manner. It even includes common "mistakes" made when using each of the program's features so that users can anticipate their occurrence and avoid them during program operation. A complete tutorial and reference section are also included.

Also part of the PAGEflipper package is a freely distributable player program for circulating your animations. PAGEflipper Plus F/X requires two floppy drives or a hard drive and at least 512K of memory, but it is highly recommended that you have 1–2MB available to make full use of the program's many features.

TV*Show Zuma Group (distributed by Brown-Wagh Publishing)

TV*Show is a very easy-to-use special-effects program employing mouse and pull-down menus to help you create a polished animation. You can obtain immediate on-line help for any operation by positioning and then clicking the mouse pointer over what you wish to know more about. An information screen will appear with detailed explanations concerning the feature.

TV*Show accepts all Amiga IFF graphic resolutions, including HAM. Overscan support is included, with an overscanned screen size of 704 × 480 (although this size leaves a small border on the left and right margins of the screen on some television sets). ►

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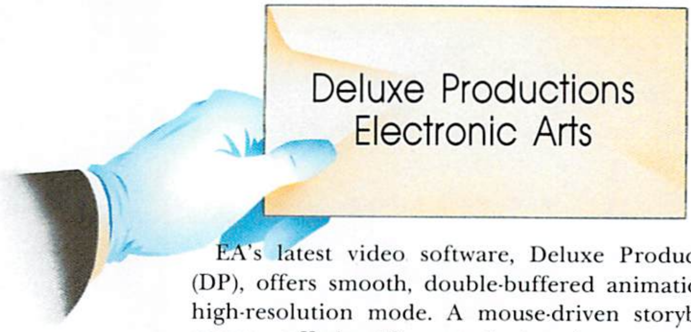
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Full-screen images or brushes can be presented in any of over 50 different ways, including wipes, fly-bys, rolls, reveals, vertical blinds and so forth.

The program operates in both the NTSC (National Television Standards Committee) and the PAL television systems and requires a minimum of one megabyte of RAM to operate. Provided your system has enough RAM, the player and editor may be multitasked for greater efficiency. TV*Show is not copy protected and works well with a hard drive. One particularly unique feature of the program is its ability to incorporate the Amiga's built-in voice synthesizer into presentations.

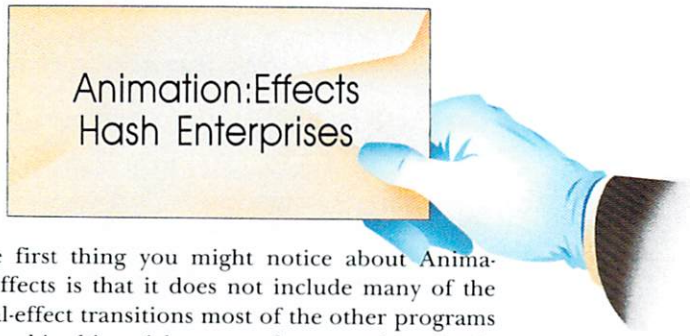
TV*Show's player program demonstrates thoughtful design; if the program is loading a part of the animation and an error occurs, the program will continue without that part, being faithful to the tradition of "The show must go on!". The manual is well written, providing easy-to-follow instructions covering each part of the program. Also included is a mini-glossary to define terms used in the manual.



EA's latest video software, Deluxe Productions (DP), offers smooth, double-buffered animation in high-resolution mode. A mouse-driven storyboard screen—offering 12 scenes that can be programmed simultaneously—controls all animation. To enhance your animation, choose from over 40 wipes, including some very effective scatters and spirals. Deluxe Productions permits easy cut-and-paste editing of all elements in an animation. The program supports any IFF high-resolution image with a palette of 16 or fewer colors out of the 4096 available.

Animations can be chained across several disks or the program itself can be installed onto a hard drive, providing for faster response time and efficiency. DP requires all of the available chip RAM plus half a megabyte of fast RAM (1MB recommended)—which may be a problem for anyone whose fast memory must be "addmemed" into the system. Two disk drives are also required. DP's player program has two options to check the animation before playing in order to ensure satisfactory playback. As with all new software from EA, Deluxe Productions is not copy protected. DP comes with two art disks filled with high-resolution graphic backgrounds and new fonts. Its manual is well written, explaining animation-creation features in clear, concise detail and including easy-to-follow tutorials.

Deluxe Productions operates in overscan (672 × 444), which (contrary to the manual and software) leaves quite a large border on all four sides of the screen. Oddly enough, the manual mentions that any image generated by another program that is larger than the Deluxe Productions format for overscan will be automatically "trimmed down" to fit into DP's overscan dimensions. Why Electronic Arts maintains its nonstandard overscan conventions is a mystery. This one glitch in an otherwise excellent package makes Deluxe Productions undesirable for many applications, such as in industrial video use. *(Reviewed by Gary Ludwick, Nov. '88, p. 16.)*



The first thing you might notice about Animation:Effects is that it does not include many of the special-effect transitions most of the other programs discussed in this article can perform—such as checkerboard-patterned wipes, spirals, and so forth. At $49.95, however, it is also by far the least expensive program in our survey.

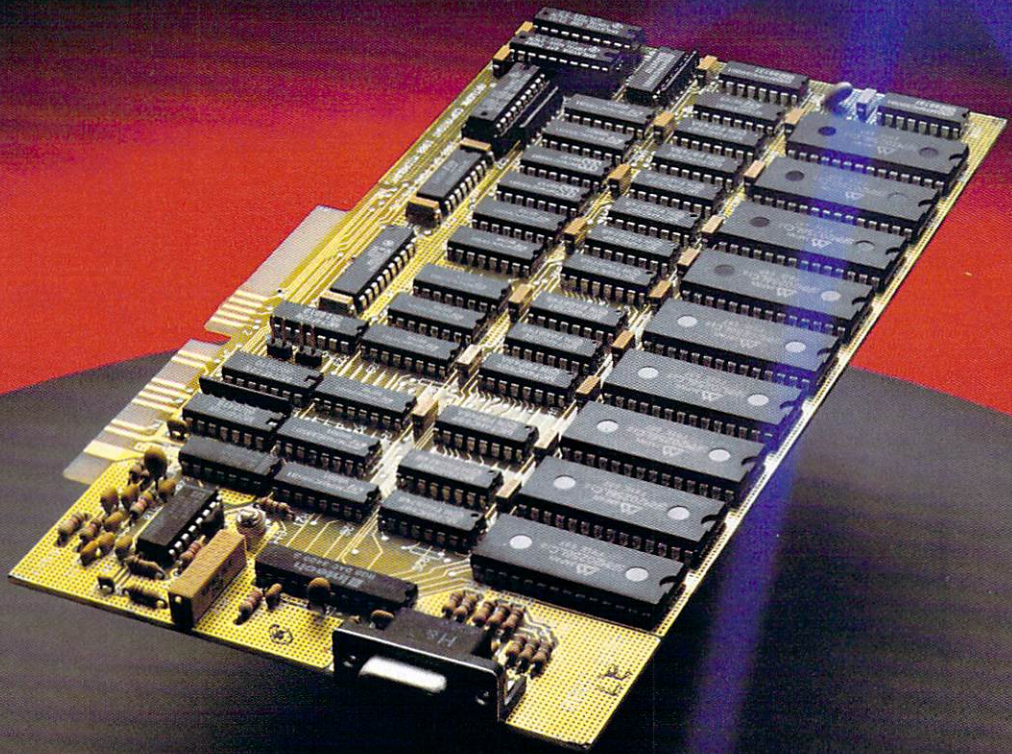
Animation:Effects is divided into three separate programs: 1) Wipe, 2) Scroll, and 3) Flip.

Wipe loads IFF or HAM images of any resolution in overscan (352 × 480 interlaced and 704 × 480 in high resolution) and allows these images to be displayed over video. Wipe can perform several different patterns; for example, you can wipe from left to right, right to left, top to bottom, and bottom to top. You can also do a box wipe from the center of the screen out to the edges of the screen, as well as perform fade-ins and fade-outs. That, however, is about the extent of Wipe's transitions. The left/right and top/bottom wipes are probably the most effective transitions offered.

Scroll loads any text or IFF image (no overscan permitted) except HAM and scrolls the information/image up and down the screen. Scroll has three basic commands regarding the movement of information around the screen: 1) up arrow—for scrolling top to bottom, 2) down arrow—for scrolling bottom to top, and 3) space bar—to pause the scroll. Although Scroll does not permit speed adjustments, depending upon the resolution used, the information/image will still move at a moderate speed suitable for normal reading and comprehension.

Flip loads IFF or HAM images of any resolution. The part of the image to be flipped must be blocked off, thus making a matte. The matte can be rotated ►

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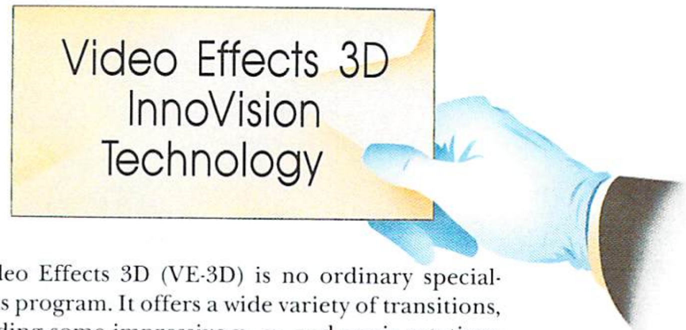
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along the x-, y-, or z-axis, thus providing you with roll, tilt, and swivel movements. In addition to these, other movements can be achieved by controlling the number of frames between the previous key frame and the next one. You can also designate how many frames to use in order to "ease" movements (i.e., eliminate any "choppy" movement associated with acceleration and deceleration).

In addition to being able to control the matte's movements, Flip also allows you to adjust light intensity, position of light source, perspective (the camera's position), shading, and pivot point of the matte. When you are ready to record, you can do so in one of three different modes: 1) IFF, 2) Pack—the compressed animation format used by all Hash Enterprises products, and 3) Anim—the storage format compatible with player programs written for Aegis Development's products.

The major drawback with Flip, however, is the slow compilation time. The time required to compile an animation with Animation:Effects was considerably longer than for any of the other programs tested. *(Reviewed by Wayland Strickland, Sept. '88, p. 70.)*



Video Effects 3D (VE-3D) is no ordinary special-effects program. It offers a wide variety of transitions, including some impressive x-, y-, and z-axis rotations with three-dimensional perspective. Objects (pictures/brushes) can be given a drop shadow to simulate a single light source. With the touch of a button, you can extrude logos into three dimensions—with the realistic perspective of solid objects. Perhaps VE-3D's most startling effect is "shatter," which can be likened to the act of laminating a picture onto a piece of plate glass and then striking the glass with a mallet. The picture will "shatter" into four pieces only, and these pieces "fly" diagonally out from each other to create the effect.

The program operates in high-resolution mode using two to eight colors per screen from the available 4096. VE-3D uses full-screen IFF images as objects. The IFF screens, however, must be created outside the program, as VE-3D has no creation capabilities of its own.

VE-3D sports an icon-and-mouse-driven user interface, permitting great speed and efficiency. The program supports overscan (704 × 452), and can be used in conjunction with a hard drive. The program is not copy protected.

VE-3D comes with a competent, detailed manual and provides one of the best on-line help features I have ever seen. If you want to learn about a particular feature, simply place the pointer over the gadget. A small explanation will automatically appear on the screen (usually to the left of the gadget). The explanations do not interfere with the execution speed of the program in any way, while providing timely reminders about program features and much-appreciated assistance when help is needed. *(Reviewed by Gary Ludwick, October '88, p. 84.)*

Matching Program to User

To sum up, one special-effects program cannot fulfill all the needs of every user. The trick is to know which one to start off with to learn the basics, and then ►

Product Information

Animation:Effects
Hash Enterprises
2800 E. Evergreen
Vancouver, WA 98661
206/693-7443
$49.95
One megabyte required.

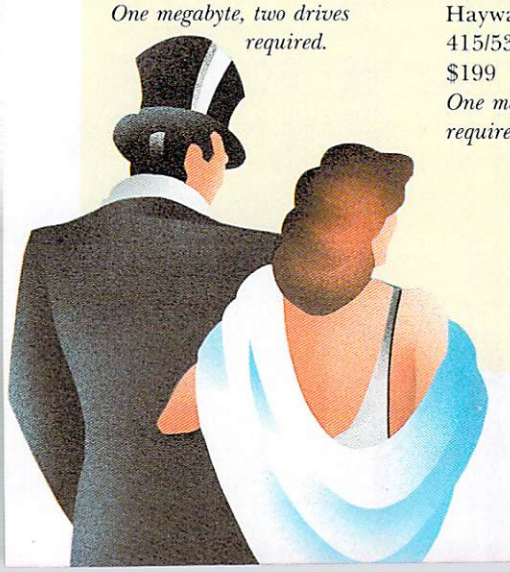
Deluxe Productions
Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
415/571-7171
$199.95
One megabyte required.

Lights! Camera! Action!
Aegis Development
2210 Wilshire Blvd.
Suite 277
Santa Monica, CA 90403
213/392-9972
$79.95
One megabyte, two drives required.

PAGEflipper Plus F/X
Mindware International
110 Dunlap St. West
Box 22158
Barrie, Ontario
Canada L4M 5R3
800/461-5441
705/737-5998
$159.95
One megabyte required.

TV*Show
Brown-Wagh Publishing
16795 Lark Ave.
Suite 210
Los Gatos, CA 95030
408/395-3838
$99.95
One megabyte required.

Video Effects 3D
InnoVision Technology
PO Box 743
Hayward, CA 94543
415/538-8355
$199
One megabyte, two drives required.



zo·ë·trope (zō´ə trōp)

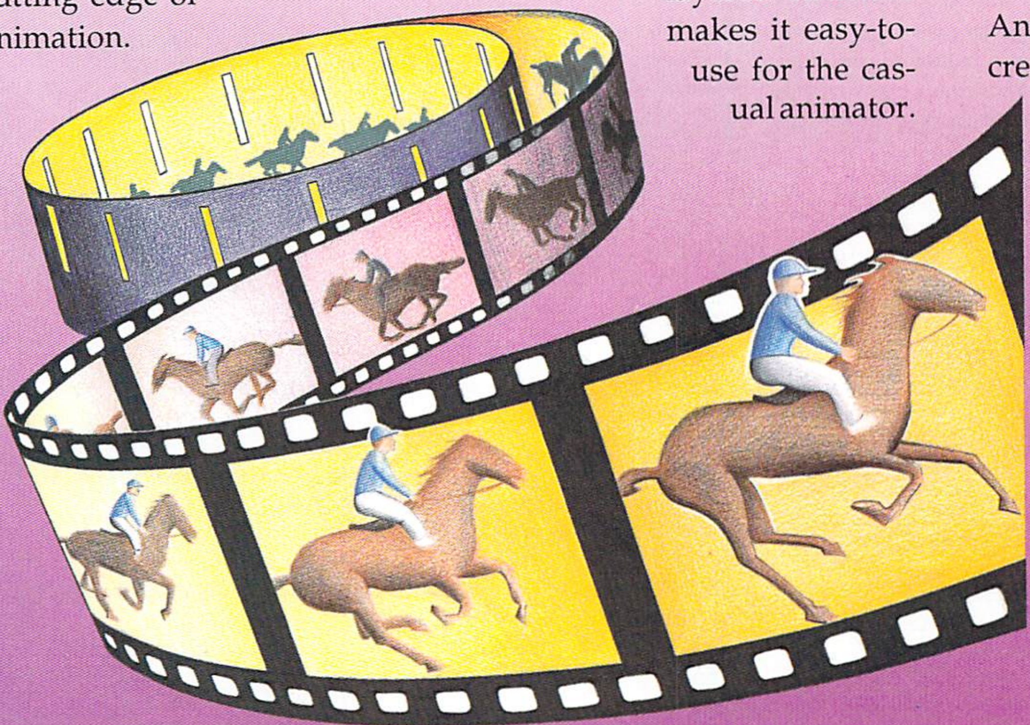
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By Jim Kent, the creator of Aegis Animator*

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which ones to move onto in order to achieve more ambitious productions. The video amateur may do well to begin with programs such as TV*Show and Animation:Effects. Both of these programs are easy to use and provide a good grounding in principles that can be put to more full effect later on.

Lights! Camera! Action! would be a good choice for the intermediate user, as it is the most versatile—offering numerous special effects in addition to incorporating digitized sound into its repertoire of features. Deluxe Productions, likewise, appears an ideal candidate for the video intermediate—although the overscan problem tends to negate many of the program's fine features. For the video pro, the sophisticated features and handling of PAGEflipper Plus F/X and Video Effects 3D make them the cream of the crop for the experienced user.

All special-effects software packages are written for one purpose—to be useful. In what manner the program will be employed is left up to you. Your particular applications and, most importantly, your creativity will determine the true usefulness of any of these programs. ■

Wayland W. Strickland is a producer, director, writer, and graphic designer of television presentations for WKCF-TV 68 in Orlando, Florida. Write to him c/o AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

Glossary of Special Effects Terminology

Blinds refreshes the screen (horizontally or vertically) as if Venetian blinds were opening or closing.

Dissolve gradually switches from one image to another.

Fade causes the image to slowly become black.

Flip or **Tumble** rotates the image around the x-axis, similar to a car's turning tires.

Hinge Swing pivots the image on one edge (top, bottom, left, or right), similar to an opening and closing gate.

Mirror divides the screen in two and places the same image on both sides; all movements on one half are reflected on the other.

Mosaic divides the screen into equal sections (four, eight, sixteen, and so forth) and repeats the same image in each block; also refreshes the screen with a spattered-square pattern.

Moving Blinds pushes an image across the screen in vertical segments, similar to closing a fan.

Pixelization gives an image a fragmented, blocky look.

Pushes move an image onto the screen from any point.

Rectangle refreshes the screen with a rectangle growing (or receding) from one corner to the corner diagonally opposite.

Scroll pushes the current image off the screen while pulling the new image on screen after it (top to bottom or bottom to top).

Shatter breaks an image into pieces that fly off the screen in different directions.

Spheres map images to spheres.

Spin rotates the image around the z-axis, similar to a spinning carousel.

Transposition places a smaller version of a full-screen image anywhere on the screen.

Turn rotates the image around the y-axis, similar to leafing through a newspaper.

Wipe overlays one image onto another using a pattern (for example, checkerboard, spots, diagonals, or triangles).

Zoom shifts the perspective closer for a larger version of the image, or further away for a smaller version.

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Flexibility	**8.6**	7.3
Advanced Features	**9.8**	8.7
Overall	**9.03**	7.67

(Quotation and table reprinted with permission from 1988 AmigaWorld *Reader's Choice Awards Announcement).*

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#2

An occasional series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

Developing a "Soft" Touch

MANY USERS OF DeluxePaint frequently tell me they have never figured out anything really useful to do with the Blend and Smooth modes. This always startles me, as I use these modes constantly in a variety of ways—for smoothing and softening edges, for enriching textures and colors, and even as a drawing tool for stretching or squeezing the shape of the image.

At a basic level, both Blend and Smooth are useful modes for softening the edge between two color areas. It is the nature of computer images to have curved or diagonal edges with a jagged look. This results from a phenomenon called "spatial-aliasing," and the blocky, stair-step look is often referred to as the "jaggies." Working at higher resolution reduces the severity of jaggies simply because the pixels are smaller. A proper solution to the problem of representing those curves and diagonals, however, is complex. The standard technique for doing so—called anti-aliasing—is a difficult one that involves computing a value for each pixel on a line in proportion to the area it occupies with its neighbors. A jagged black line, for example, becomes a line composed of black and shades of gray, giving the illusion of smoothness to the eye.

In a way, both Blend and Smooth can perform a similar softening of edges, with far less expenditure of time and effort. With Smooth, as a brush is passed over color borders in an image, the entire palette is searched for intermediate colors that are then painted into that border. This has an overall softening effect on all parts of the image passing under the brush. Blend, on the other hand, can respond to a controlled group of colors established in the palette. It is perhaps most effective when used with a sequential Range of colors. Eight browns, for example, could be Spread evenly from dark to light, or yellow could be sequentially Spread to blue, then established as a Range. Blend will use as intermediates only those colors in the Range, and will affect only those colors in the painting falling within that Range. This is a powerful feature.

One key to capitalizing on the power of both Blend and Smooth is logical palette arrangement. There must be enough of a range of values within a color group to provide as many options as possible for intermediate colors at a boundary. Another factor to experiment with is brush size. The larger the brush, the more drastic the effect. As a rule, smaller brushes afford greater control and more gradual change.

Contrasting Effects of Blend and Smooth

Blend operates very quickly as you move a brush, while Smooth can take quite a while to perform its computation, depending on the size of the brush. I find that I use Smooth mainly as a method of softening the boundary between two dissimilar color regions in a painting, or to give a diffuse look to something, a distant mountain range, for instance. In the astronomical landscape (Figure 1), I have highlighted a typical area in which I might use Smooth. The line of the cliff in front of the distant planet is quite jagged as drawn. Inset 1 shows that region magnified, while Inset 2 shows that same region after using Smooth. The line is softer and more natural in appearance. Smooth found both browns and blues in the palette as intermediate colors, ignoring any Range settings.

In the foreground of the same painting, I have highlighted a typical area ►


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DeluxePaint's Blend and Smooth modes can reduce the "jaggies" in your image, and also enhance the richness of its color and texture.



Figure 2: Animation frame from "RGB Hazard" to which Blend stretching technique has been applied.

where I might use Blend. All the browns in the landscape have been included in a Range. Where I have drawn a piece of light brown bordering dark brown, I have an opportunity to use Blend for added richness of color and texture. Blend is a much more active tool than Smooth, changing the shape of regions over which it passes in a controllable fashion. In the dotted-line mode, Blend operates almost instantly, even with fairly large brushes. What was a crisp shape of light brown becomes a more natural-looking, contoured form after the brush has affected it. Inset 3 shows a magnification of the foreground region untouched, while Inset 4 shows the effect of Blend on that region. It is easy to see the even gradation of color and value this technique accomplishes.

A trick I often use with Blend in landscape painting is to create a brush that is merely a thick line. I can use the straight-line tool for this, or simply cut out a bar from the picture itself with the brush selector. Selecting a foreground color in the appropriate Range, I hit the F6 key for Blend mode and click on the straight-line tool. Using fast feedback, I anchor the bar outside the region I want to affect, and stretch a line across the picture and release the mouse button. The brush slowly and evenly sweeps across the picture, affecting only the appropriate colors beneath it and giving a subtle stroke direction to everything in its Range. This stroke effect can enhance the look of a mountain slope, a snow field, or banding on Jupiter, for example. Be judicious with Blend or Smooth, letting the technique contrast with crisp regions elsewhere in the image.

In an Entirely Different Mold

One of my favorite uses for Blend is as a drawing mode, rather than a softening tool. It is very effective in altering black-and-white digitized images. Using the entire 16-level gray scale as a Range from black to white, you can load a digitized image into DPaint and Remap it to that palette. You can then squeeze, stretch, and reform it in any imaginable way.

The lip-stretching image (Figure 2) is a frame from an animation called "RGB Hazard" I created using The Director program (Right Answers Group). I digitized a series of pictures with my hands in position pulling imaginary frog lips. In DPaint, I used a medium-sized brush in Blend mode to repeatedly "push" the cheeks and lips out toward the fingers. Amazingly, the action feels more like pushing clay than like painting—there is always a soft contour to the edge of the area being pushed. Make sure you include the background color in the Range, or else this technique will not work. Small areas of white can be smoothly extended into black regions, then pushed and shaped from the black areas back into the white. It is a drawing experience unique to the computer. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361.

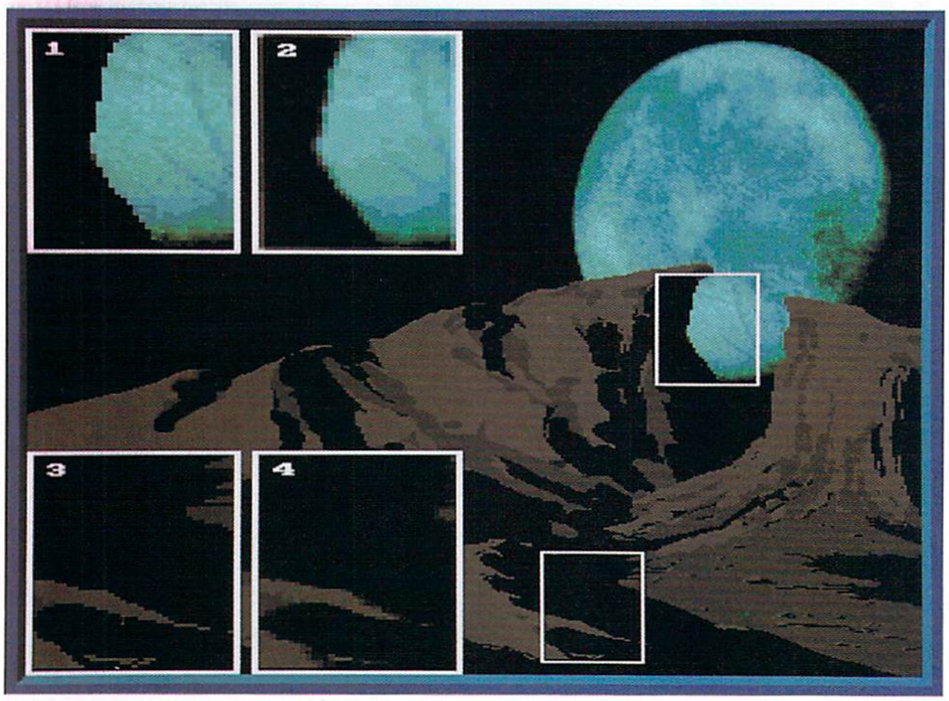


Figure 1: Astronomical landscape with insets showing effects of Blend and Smooth.

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AmigaDOS Inside and Out (Abacus, $19.95) discusses AmigaDOS from its design to its practical applications, including operating notes about the CLI.

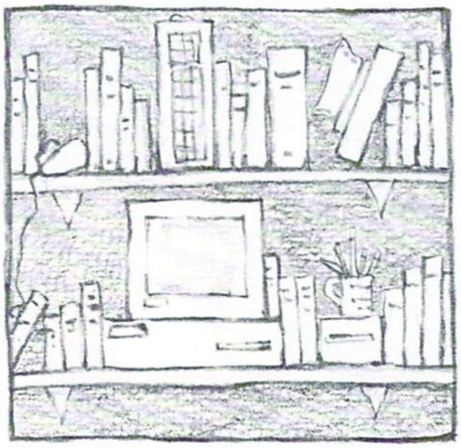
The AmigaDOS Manual: 2nd Edition by Commodore-Amiga Inc. (Bantam, $24.95) discusses all 1.2 AmigaDOS commands, explains the Amiga's filing system, and gives guidelines for program development in C and assembly language.

AmigaDOS Reference Guide by Arlan R. Levitan and Sheldon Leemon (COMPUTE! Publications, $18.95) defines and illustrates all AmigaDOS 1.2 commands, helps you create file directories, access peripherals, run batch files, and explains the screen and line-oriented text editors.

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Amiga Applications by Brian Flynn (COMPUTE! Publications, $15.95) offers 24 type-in programs written in Microsoft BASIC, including home and business applications, science and math tools, and games.

Amiga Tricks and Tips (Abacus, $19.95) is a collection of Workbench, CLI, and BASIC programming hints, plus applications programs. It shows how to allocate memory, trap errors, use fonts, and mix machine language with BASIC.



First Book of Amiga (COMPUTE! Publications, $18.95) is a compilation of games, applications, and programs designed to show off multitasking. A disk with the book's programs is available from COMPUTE! for $15.95.

Inside Amiga Graphics by Sheldon Leemon (COMPUTE! Publications, $18.95) describes the Amiga's graphics and animation abilities, as well as how to use commercial graphics hardware and software.

1001 Things to Do with Your Amiga by Mark Sawusch and Dave Prochnow (TAB Books Inc., $12.60) suggests uses from household record-keeping and budgeting to investment analysis and business management, from games and hobbies to scientific and educational ideas. Listings, printouts, flowcharts, diagrams, and illustrations are provided.

Second Book of Amiga (COMPUTE! Publications, $15.95) contains ready-to-type-in programs in Amiga Basic. This anthology offers programming tips and hints, applications, utilities, graphics tools, educational programs, and games.

Using DeluxePaint II by Steven Anzovin (COMPUTE! Publications, $19.95) is a tutorial on Electronic Arts' popular graphics program, from basic drawing skills to customizing brushes. Illustrations and examples included.

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Advanced Amiga Basic by Tom R. Halfhill and Charles Brannon (COMPUTE! Publications, $18.95) covers designing graphic applications, generating sound and music, creating a user interface, programming peripherals, and advanced BASIC commands for experienced programmers.

Amiga Assembly Language Programming by Jake Commander (TAB Books Inc., $13.60) supplies an overview of 68000 assembly language, including binary arithmetic and the syntax, addresses, and effects of assembly commands.

Amiga Basic Inside and Out (Abacus, $24.95) combines a beginning tutorial and advanced guide. A complete glossary, an Amiga Basic Quick Reference Guide, and error message descriptions are reference features.

Amiga C for Advanced Programmers by Bruno Jennrich, Wolf-Gideon Bleck, and Peter Schulz (Abacus, $24.95) explains the workings of compilers, assemblers, and linkers. The book also covers designing and programming user-friendly interfaces with Intuition, using jump tables and dynamic arrays, and ►

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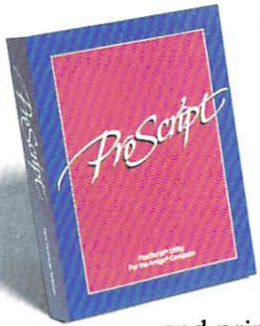
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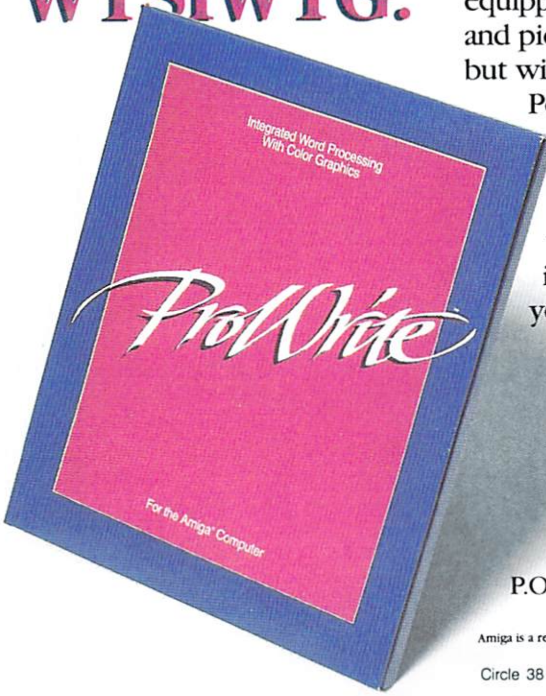


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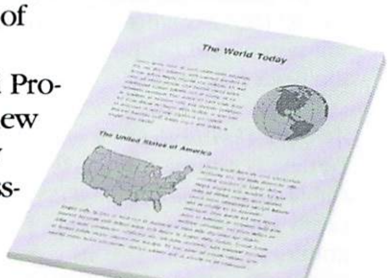


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Amiga C for Beginners (Abacus, $16.95) describes C library routines, uses examples, explains the language elements, plus includes an introduction to direct programming of the operating system.

Amiga Machine Language (Abacus, $19.95) eases you into progamming with 68000 machine language. Accessing hardware registers, using Amiga libraries, creating gadgets, and working with Intuition are among the topics covered.

Amiga Machine Language Programming Guide by Daniel Wolf and Douglas Leavitt, Jr. (COMPUTE! Publications, $21.95) is a 68000 machine language introductory and reference guide useful to both the beginning and advanced programmer. A disk that includes files and programs from the book, and a complete Amiga assembler is available for $19.95.

Amiga Programmer's Guide (COMPUTE! Publications, $16.95) covers AmigaDOS, BASIC, and Intuition in a guide to the inner workings of the Amiga's 68000 microprocessor and its graphics and sound capabilities.

The Amiga Programmer's Handbook Volumes I and II by Eugene P. Mortimore (Sybex Books, $24.95 each) have both been recently revised. Volume I is a reference for graphics programming with system command and function calls presented by function class. Volume II discusses Amiga devices and I/O programming, including program listings.

Amiga System Programmer's Guide (Abacus, $34.95) explains the Amiga's operating system and custom chips, plus discusses how to access them.

Amiga Technical Reference Set (Addison Wesley) is a three-volume set. *The Amiga Hardware Reference Manual* ($24.95), recently revised, explains sound and graphics hardware and its communication devices. *The Amiga ROM Kernel Reference Manual, Includes and AutoDOCS* ($32.95) covers C and assembly language, include file functions, AutoDOCS, and IFF documents. *Amiga ROM Reference Libaries and Devices* (release date April '89, $34.95) provides detailed descriptions of the ROM Kernel's features and functions, including Exec, Intuition, and Workbench.

Amiga 3-D Graphics Programming in BASIC (Abacus, $19.95) describes using the Amiga's graphics capabilities. This volume details the techniques and algorithms for writing routines for ray tracing, light sources and shading, and saving graphics in IFF format.

Elementary Amiga Basic by C. Regena (COMPUTE! Publications $14.95) is a tutorial and reference guide to controlling graphics, animation, and sound with Amiga Basic.

Learning C: Programming Graphics on the Amiga and the Atari ST by Christopher D. Metcalf and Marc Sugiyama (COMPUTE! Publications, $19.95) uses examples to teach programming in C, paying special attention to graphics controls and accessing system commands.

The Waite Group's Inside the Amiga with C by John T. Berry (Howard W. Sams & Co., $24.95) focuses on the Amiga 500, graphics, and AmigaDOS. This volume contains Intuition code listings and is designed for the beginner to the intermediate.

Introductory

The Amiga by Mike Bloom (Microsoft Press, $19.95) is an intermediate guide for the graphic artist. Creating sophisticated images, using the object editor, and using synthesized sound with animated sequences are discussed.

Amiga Disk Drives Inside and Out by Andreas Grote, Ralf Gefland, and Jens Abraham (Abacus, $29.95) promises to teach how to speed up data transfer and describes the workings of copy protection and computer viruses. Workbench and CLI functions, plus loading and saving sequential and relative files are discussed. Programs are included, as well.

Amiga for Beginners (Abacus, $16.95) introduces you to Intuition, the mouse, windows, the CLI, and Amiga Basic. For reference, the volume includes a "first-aid" appendix, icon and technical appendices, and a glossary.

The Amiga Handbook by Markus Breuer (Progressive Peripherals & Software, $24.95) is a reference guide for beginning to advanced users covering Workbench, Intuition, multitasking, and the Amiga 1000 in detail.

The Amiga User's Guide to Graphics, Sound and Telecommunications by David Myers, with programs by Joe Powers (Bantam, $18.95) narrates screen-by-screen tours of the Amiga's features.

Beginner's Guide to the Amiga by Dan McNeill (COMPUTE! Publications, $16.95) guides you through setting up your system to choosing software and hardware.

Kids and the Amiga by Edward H. Carlson (COMPUTE! Publications, $15.95) promises to entertain as it teaches programming in BASIC. This beginning level book is for both children and adults. ■

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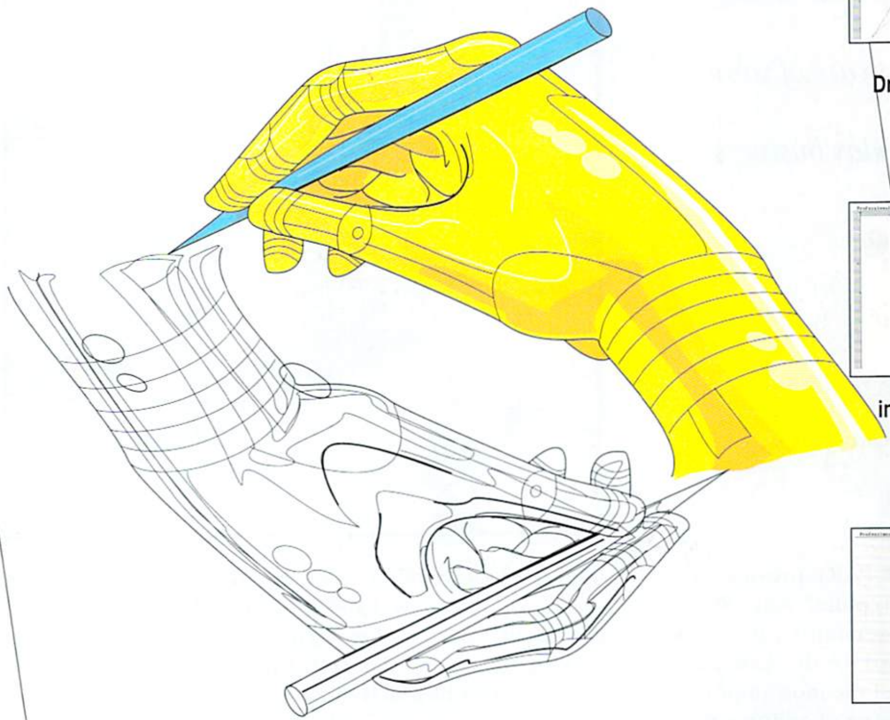
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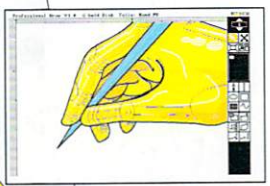
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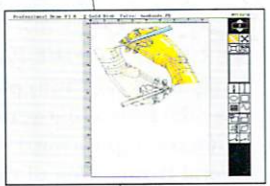




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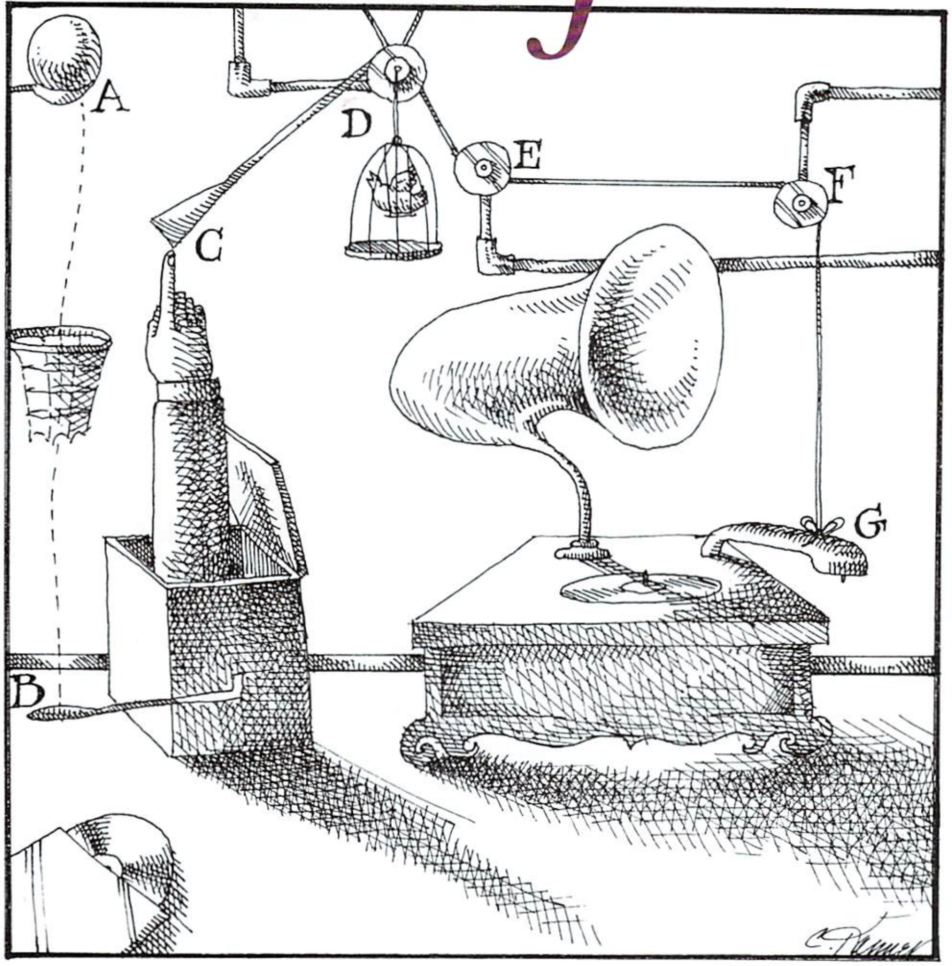
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Handle With flair

AmigaDOS 1.3 offers a number of new device handlers not found in version 1.2 that will help take better, more efficient care of your system's everyday business.

By Mark L. Van Name

and Bill Catchings



OUR RECENT FIVE-PART preview of AmigaDOS 1.3 ("info.phile," Aug. '88–Dec. '88) shows that version 1.3 is an evolutionary step forward for the Amiga on several fronts. One of the most important of these—and deserving of additional emphasis here—is its standardization of a single way for us to use most major system resources—through device handlers.

AmigaDOS has included device handlers, of course, since its first release. In the beginning, however, they worked only with physical devices, things that were part of the system's hardware. You used the SER: handler to work with the serial port, the PAR: handler managed the parallel port, and so forth.

With version 1.3 the Amiga developers extended this notion and added handlers for software "devices." While these devices are not things you can reach out and touch, they often provide powerful services that help you take care of your everyday Amiga business.

We have already covered a few of these device handlers in the 1.3 preview: RAD:, the handler that implements the new recoverable RAM disk; NEWCON:, which gives the Shell its history buffer and command-line editing features; and ENV:, which will someday give us Shell environment variables. (Today ENV: is merely a name assigned to a RAM: directory where the Shell stores environment variables. Nonetheless, it is significant that Commodore is serious enough about devices to set up ENV: now so that it will not change visibly in the future when it is a true device handler.)

Three new device handlers not covered previously are also worthy of note. AUX:, SPEAK:, and PIPE: perform useful ►

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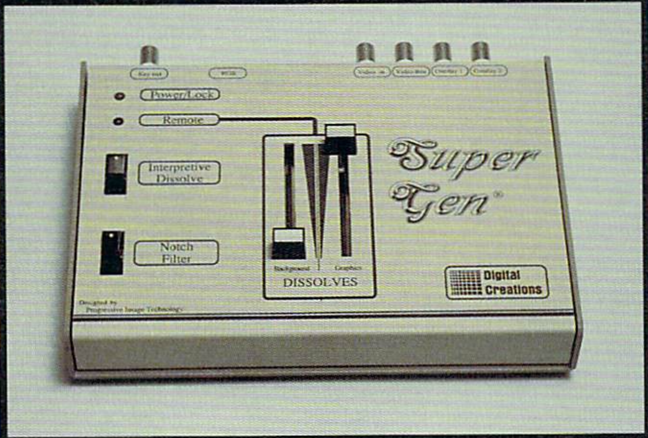
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functions and may prove significant additions to your system.

DON'T CHOOSE 'EM IF YOU CAN'T USE 'EM (BUT MOUNT 'EM IF YOU WANT 'EM)

Any time a new operating-system feature appears, the right question to ask is "so what does it do for me?" At first glance, the new 1.3 device handlers may seem to be little more than technical goodies providing little real help. Look at them a little more, however, and you will see that this first impression is wrong.

First of all, they help make AmigaDOS more consistent. To send a file to any device—from the printer to the speaking software—you simply copy it to the appropriate device. This consistency makes the system a lot easier to learn. Equally important, they make it easier for software developers to utilize the Amiga's resources more fully, meaning that developers will be more likely to build applications that exploit the entire machine. Finally, as we will show in some of the examples below, some of the new devices make it easier for us to perform useful day-to-day tasks.

Before we get into the specifics of these three new devices, we need to mention one important characteristic all of them share: You have to mount them before you can use them. Fortunately, doing so is easy—simply use the MOUNT command and the name of the device's handler, as in

```
MOUNT AUX:
```

or

```
MOUNT SPEAK:
```

Actually, it's even easier than that with 1.3, because the standard startup files do most of the work for you. S:STARTUP-SEQUENCE mounts NEWCON:. That file also calls another startup file, S:STARTUPII, which mounts AUX:, SPEAK:, and PIPE:.

Even though these devices are not disks, there is nothing magic about how the MOUNT command mounts them. As with disks, it uses an entry in the file DEVS:MOUNTLIST to control how it sets up each device. The entry for RAD: looks basically the same as the disk-drive entries we discussed in our last column. The entries for the other new devices—NEWCON:, AUX:, SPEAK:, and PIPE:—use different keywords than the disk-drive entries, but they follow the same basic format as those entries.

All of the MOUNTLIST entries for these four new devices contain the following basic information:

```
<dev_name>:
        Handler = L:<handler_name>
        Priority = 5
        Stacksize = <stack>
#
```

For example, the NEWCON: entry fills in the missing variables in the above example with the following:

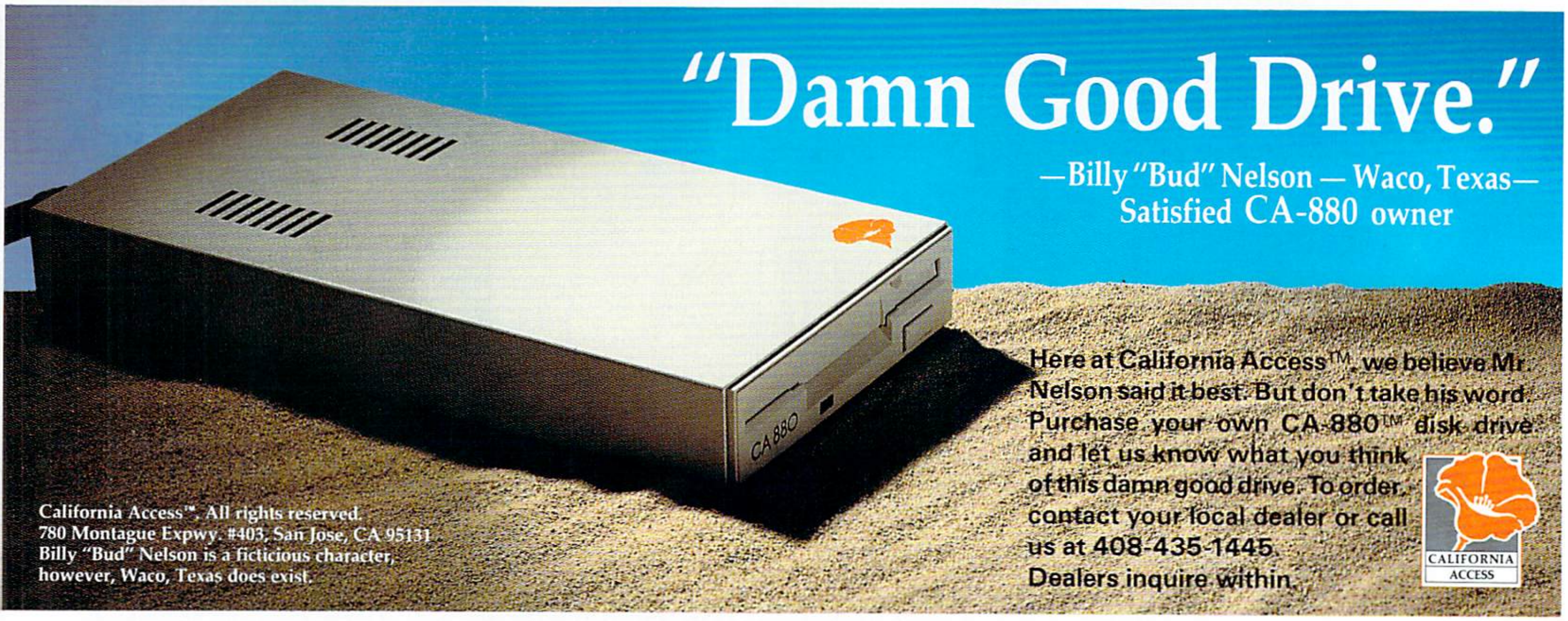
```
NEWCON:
        Handler = L:Newcon-Handler
        Priority = 5
        Stacksize = 1000
#
```

The first line gives the device's name. The second says that its handler is the program Newcon-Handler in the L: directory. The handlers for the other three new devices are L:Aux-Handler, L:Speak-Handler, and L:Pipe-Handler. All of these handlers run at priority 5 by default, as Commodore recommends. The Stacksize parameter merely tells the system how much of its memory stack to set aside for each handler. NEWCON: and AUX: use a default stack of 1000 bytes, while SPEAK: and PIPE: have a default Stacksize of 6000 bytes.

The MOUNTLIST entries for SPEAK: and PIPE: also contain one additional line that requires explanation:

```
GlobVec = -1
```

The GlobVec parameter controls whether a handler requires a special memory area called a Global Vector. This memory-area requirement is a holdover from the Amiga's sordid past, when most of the original system was written in a cumbersome language, BCPL (Basic Combined Programming Language), that required it. Newer system code written in C or assembly language usually does not require a global vector. If a device's MOUNTLIST entry omits this line, then ►



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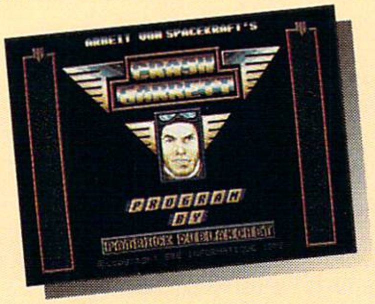
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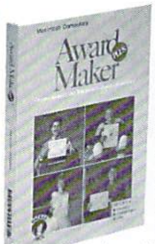
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that device is able to work in the AmigaDOS shared Global Vector. By setting GlobVec to −1, the SPEAK: and PIPE: entries say that those devices do not need any global vector. (Some device entries also set GlobVec to 0. Those devices require a private global vector.)

AUX and Squawks

First, let's take a look at AUX: and SPEAK:. While the latter should prove a useful addition to your system, the former, unfortunately, may fail our "So what. . .?" test. AUX: basically is another device, like SER:, that lets you work with the Amiga's serial port. Unlike with SER:, however, you must mount AUX: before you can use it. More importantly, while SER: will buffer its input and output until the Amiga and the attached device are ready, AUX: does no buffering. What this means, however, is that you can use AUX: to attach a second terminal to your Amiga's serial port and run a CLI from that terminal.

So what good is that to most of us? Probably not much. If you want to turn your Amiga into a rudimentary multi-user system, AUX: is worth a closer look. There may be business applications here for your work, or perhaps you may be part of a multi-Amiga family with unique communications needs. But, most of us work alone on our Amigas and for us AUX: is only a passing curiosity.

SPEAK:, on the other hand, provides another way to use one of the Amiga's most interesting capabilities, its ability to talk to us. Yes, we've had the CLI SAY command for some time, but SPEAK: lets us shove files at the sound-generation system with ease. To have your Amiga read a file back to you, just do

COPY <file> TO SPEAK:

and sit back and listen.

As with SAY, SPEAK: comes with many options that let you control the way the speech sounds. To attach an option to SPEAK:, follow it with the word OPT and a string of one or more options, each separated by a slash (/). For example

COPY <file> TO SPEAK:OPTM/N

says that SPEAK: should read back <file> with a male, natural voice. The table below sums up SPEAK:'s options.

By the way, SPEAK: depends not only on its handler, but also on the Amiga devices that convert text to phonemes (LIBS:TRANSLATOR.LIBRARY) and output phonemes (LIBS:NARRATOR.DEVICE). These files come in the standard LIBS: directory; make sure not to delete them if you plan to use SPEAK:.

PIPE: Fast Action, No Hype

Our final new AmigaDOS 1.3 device, PIPE:, is a technical feature written by Amiga developer Matt Dillon. It is based on the pipe capabilities of Unix, MS-DOS, and other well-known operating systems. Basically, PIPE: provides an easy ►

Table 1. SPEAK: device's options.

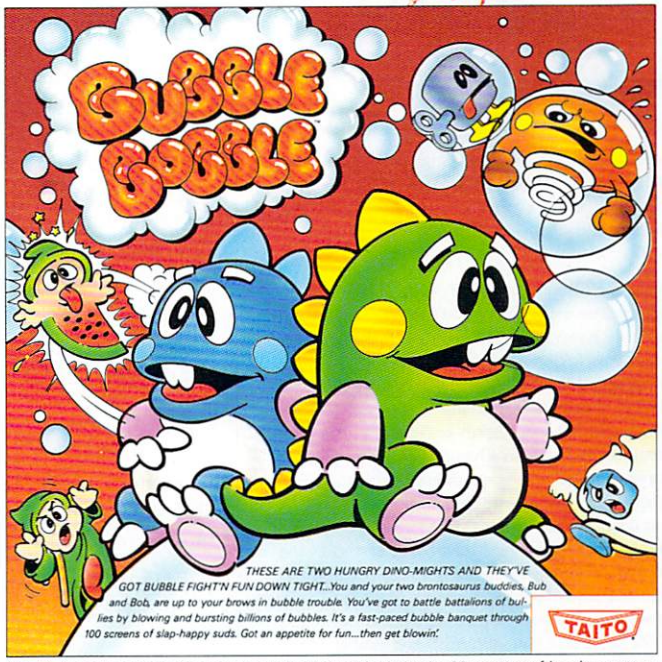
p<nnn>	where <nnn> is a number from 65 to 320 that controls the pitch of the voice.
s<nnn>	where <nnn> is a number from 30 to 400 that controls how fast the voice talks.
m	makes the voice male.
f	makes the voice female.
r	makes the Amiga use a robotic voice.
n	makes the Amiga use its most "natural" voice (which, as we all know, is not all that natural).
O<n>	controls whether the input text file can contain voice control options. If <n> is 0, the default, the file cannot; if <n> is 1, the file can.
A<n>	controls whether the Amiga first translates the input file to phonemes (<n> = 0, the default), or assumes that the input file already contains phonemes and speaks them directly (<n> = 1).
D<n>	controls whether the Amiga breaks up sentences based solely on how they are punctuated (<n> = 0, the default), or whether it also assumes that sentences end whenever it encounters a carriage return or line-feed (<n> = 1).

■

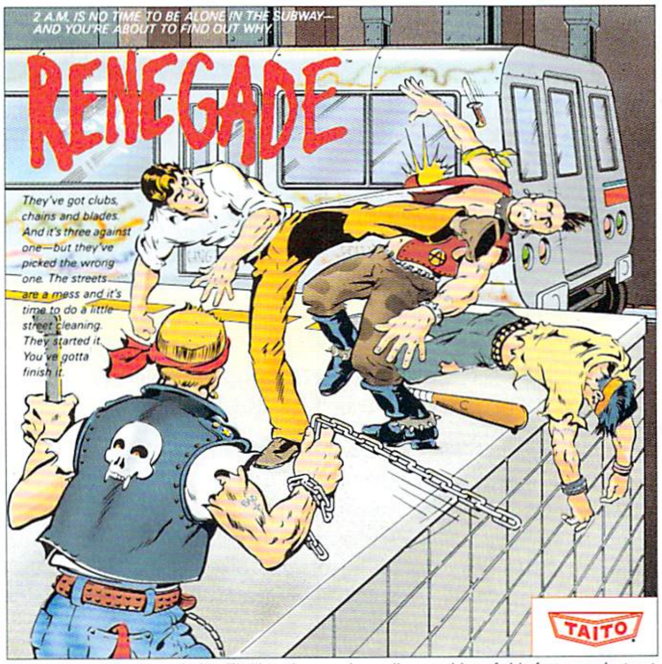
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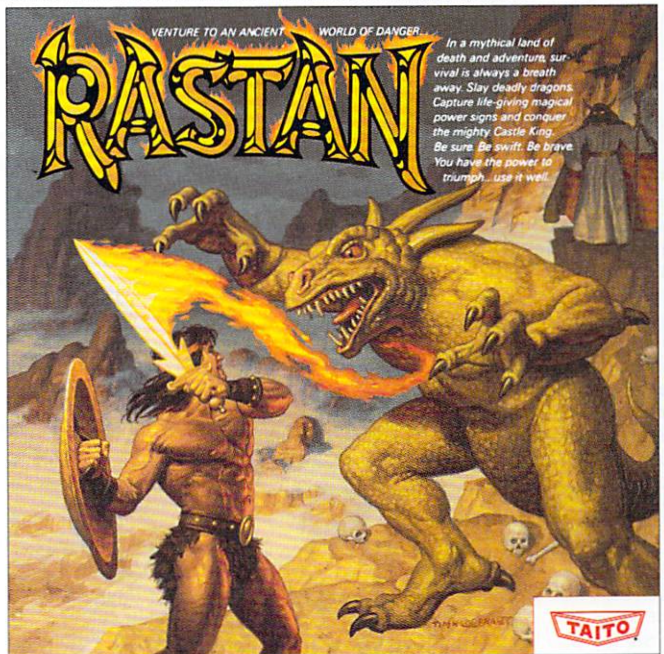
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Flight notes # 4C

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way for one process to send data to another without your having to worry about coordinating their work.

For example, let's say that the listing of the top level directory of your hard disk runs three or four screens. If you are trying to see what's in there, you have to be quick to pause the screen as the listing scrolls by. You could get around this problem by redirecting the output of DIR to a file and then using the MORE utility on that file, as in

```
DIR > <file>
MORE <file>
DELETE <file>
```

Unfortunately, this approach requires that you create and then delete a temporary file. Even if the file is in RAM:, that still wastes time. By using PIPE: you can simply feed the result of DIR to MORE:

```
RUN DIR > PIPE:<pipe_name>
MORE PIPE:<pipe_name>
```

As fast as you can type the second line, MORE will display the listing on your screen. When you are done, there is no temporary file to delete.

The name PIPE comes from the idea of a data pipeline: A writing program dumps data in one end as fast as it can, and a reading program sucks it out the other end as fast as it can handle.

So what happens when the pipe is full? Fortunately, that will not happen very often, because PIPE: can buffer up to 4K of the output of the writing program. Should the writing program get more than 4K ahead of the reading program, PIPE: will pause the writing program until there is room again in the pipeline for its output. In the example above, this is why you can avoid a temporary file. PIPE: manages the flow of data between DIR and MORE for you. It takes the output of DIR and hands it to MORE as fast as the two programs can handle.

There is one big hitch to this approach, however, and you can see it in the use of the RUN command with DIR in the example above. Because the size of the buffer is limited to 4K, the writing program (in our example, DIR) will pause and tie up the CLI in which you started it if the program fills up the buffer. Then the reading program (MORE in our example) will never get to start, and your CLI will hang. In fact, you will never even get to type in the reading line, because the writing program will hang as it waits for the PIPE: to clear. This means that the writing and reading programs should run in separate CLIs—which is why we used RUN to put our DIR in its own process. Remember to use RUN or two CLIs to keep the reading and writing programs separate.

If you do put them in the same process and they hang, don't panic; you do not have to reboot. Merely push your CLI window to the background, go to the Workbench, and start up a new CLI. In the new CLI, type the command to start the reading program, and it will begin to work.

There is one other hitch: The reading program must be of the type that simply reads bytes one after another. MORE is that kind of program, as are most terminal-emulator data capturers and many other applications. The reading program must not try to position to a specific location in the input "file" that it thinks it is reading. Database programs, for example, often go to exact byte locations for searches, and therefore you cannot give them a pipe as input.

As another example of how pipes can help in real applications, consider a terminal emulator that you are using to download a file. Every time its internal buffer fills up, the terminal emulator has to pause and write the file to the disk. This slows the file transfer. Instead, you could have the terminal emulator write to the file PIPE:capture_file. Then, in another CLI process, you could execute the command

```
COPY PIPE:capture_file TO
  transferred_file
```

PIPE: will handle the buffering for the file transfer and help it run more smoothly and quickly.

These new software devices make powerful additions to your Amiga's capabilities. Probably the most important addition to any Amiga, however, is a hard disk. Next month, we will discuss buying a hard disk and what it takes to get it up and running on your Amiga. Until then, go out and buy AmigaDOS 1.3 (it finally began hitting the stores at the end of October '88) and start playing around with these new devices. ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Rd., Durham, NC 27703.*

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MUSIC

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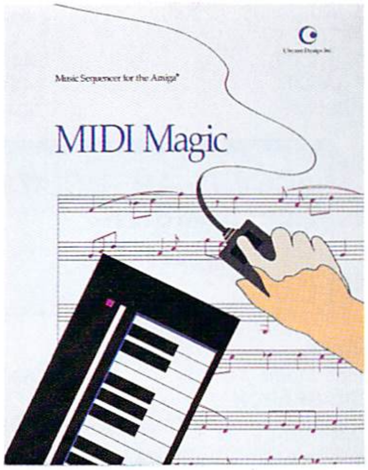
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Impressive Features

One sequencer cannot be all things to all musicians, however, **MIDI Magic**'s impressive list of features will provide a good, usable MIDI environment. Key features include multichannel simultaneous recording, 480 PPQN resolution, 4-mode quantization,



multiple time signatures, as well as realtime, modular or step modes. You can record any type of MIDI data onto 16 tracks with up to 26 sequences!

Truly Amiga

With color, windows, gadgets and pull-down menus, **MIDI Magic** looks and feels like an Amiga sequencer. You can use the mouse or keyboard for control. Screen resolution can be changed from medium to high, on the fly, if you want to show more windows on the same screen. And guess what — the HELP key actually brings up help screens for any function!

Outstanding Interface

Most importantly, **MIDI Magic**'s user interface is outstanding. It works just like a tape recorder, with Play, Record, Pause, Rewind and Fast Forward controls. If you've used a tape deck, you can start using MIDI Magic almost immediately. There are lots of extra touches, too. Like the "Don't Panic" gadget which will kill a stuck note on the MIDI device. Or the memory fuel gauge which will warn you of memory shortage. Then there's the colorful metronome which moves across the menu bar in time with the beat. Best of all, the Magic Wand mouse pointer bestows upon you creative power!

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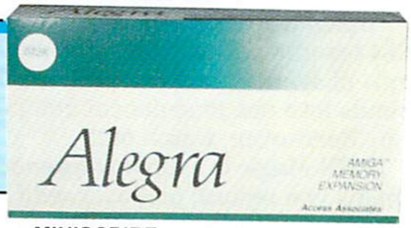
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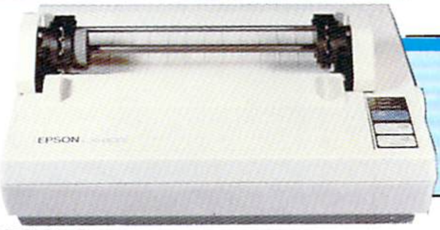
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THE GAME PRESERVE

LOST IN A JUNGLE of games? Each month B. G. (Big Game) Hunter captures the best and shoots the rest. When he isn't stalking new games, he'll tell you how to tame the ones you already own. For a good time, call B. G. or check out our expanded game review section following his column.

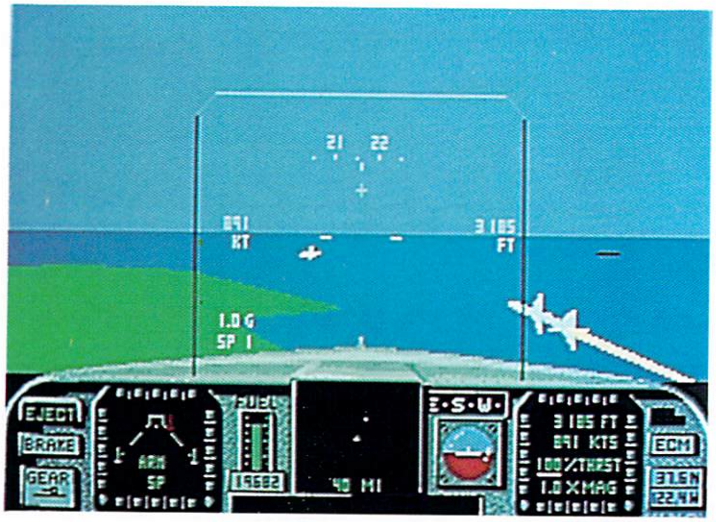
Plane Talkin'

From sight-seeing planes to seeing planes in your sights.

By B. G. Hunter

OVER THE PAST month, I logged enough hours in the cockpits of flight simulators to get my pilot's license twice over. All that air time reinforced my basic feeling about flight simulators: Playing games is much more fun than just flying around.

Of the six flight simulators tested (Flight Simulator II, Jet, Flight Path 737, SkyChase, Harrier Combat Simulator, and F/A-18 Interceptor), none illustrated this distinction better than subLOGIC's **Flight Simulator II** (FS2). The company based FS2 on its original IBM Flight Simulator that set the standard for the many others that followed. FS2 lets you fly a Cessna, Lear jet, or World War I biplane with realistic controls. You fly to cities around the world and learn navigational skills along the way. You can even buy disks of scenery—great if you love to fly, but I was bored silly.



Missiles away with F/A-18 Interceptor.

Granted, FS2's "Gates" Lear jet is a step up over the original version's Cessna, and the scenery is nice. I even had a few jollies flying under the Golden Gate Bridge and between the Twin Towers. The World War I flying ace missions did give me a taste of combat, but the game left me longing for a jet, a fast one, preferably fully armed with Sidewinder missiles.

The second flight simulator from subLOGIC, **Jet**, is a lot closer to my ideal. It offers a fighter jet, either an F-16 or a carrier-based F-18, both are armed for action against ground targets and Russian MIGs. You pick your weapons as you roar off to combat. You can even connect a second Amiga and dogfight with a friend. Jet also improves on FS2's boring instrument panel with a "heads-up" display that is superimposed on the windshield. This design lets you avoid looking down at the instruments, a move that could be fatal in a duel with a MIG. ►

"GAME PRESERVE" LOGO BY CHRIS SPOLLEN

Brown Wagh

SPOTLIGHT ON

GRAPHICS

Express Paint 3.0

Developed By Professional Automation Resources, Inc.

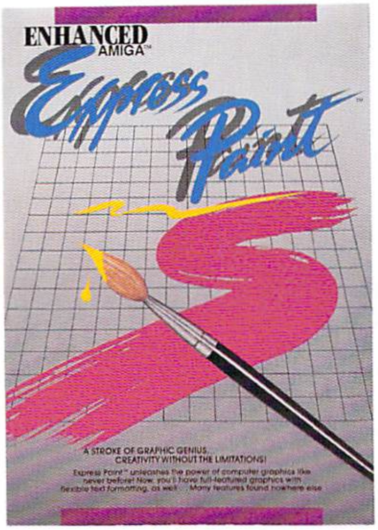
"New Contender For Heavyweight Title Of The Paint Programs."

That's what the press wrote about Express Paint's initial release. When version 2.0 shipped, it became the only paint program with PostScript and poster-size printing. Now version 3.0, with a whole new set of capabilities, deserves still another look.

Virtually Unlimited

Start with Express Paint's ***virtual page***. This lets you create a picture of any size and any number of colors, without running out of chip memory. Want to work on several pictures at the same time? Need some spare screens? Cut and paste from one picture to another? No problem.

Then look at the ***undo*** feature. While some programs let you undo your very last change, Express Paint lets you undo any number of changes. Experimentation gets a lot easier, doesn't it? Express Paint can also redo what you've undone. In other words, you can undo many steps, make a few adjustments, and then step forward



again, automatically redo-ing what you've undone. It's wild!

New Special Effects

Once you stop experimenting with the virtual page or unlimited undo-ing and redo-ing, you"ll find a rich collection of special-effects tools. First there is the ***3-D perspective*** which transforms any 2-D brush into a 3-D creation. Then there are tinting and gradient fill tools. Since Express Paint lets you use many brushes in memory at the same time, you now can rotate, distort, stretch, mirror and fill them with text.

Speaking of text; no other paint program offers as much control. Express Paint lets you import text and place it anywhere — inside images or around irregular objects. Fontstyles, size, justification, margins and line spacing can all be adjusted.

This version of Express Paint has so many features, you owe it to yourself to give it a look. For a limited time, PAR Software will also include a FREE Clip Art Disk ($29.95 value) containing hundreds of color images.

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Jet's biggest drawback is its huge set of keyboard commands—almost every key does something. While you are memorizing them or consulting the reference chart, the beginner mode makes flying easy; it won't let you crash. As you log more hours, you can move up the skill levels until you're a true fighter jockey.

I enjoyed playing Jet—blasting foes in a fighter, just my speed—but it's not my favorite of the pack.

Anco's **Flight Path 737**, on the other hand, shows you what flying a real 737 is like—a job. Your goal is to take your 737 on a typical flight. (Be still my heart!) You earn your Captain's wings by completing a series of increasingly difficult flights. The final level requires you to overcome severe winds and an engine fire. I never got anywhere near that far.

Flight Path 737 forces you to use a mouse, not a joystick. After a few minutes, you'll understand why you don't see any mice in airplane cockpits. Even at the lowest skill level I had trouble taking off. That frustration, coupled with the miniscule manual (two and a half pages), made me feel like I had no control over what was happening. Maybe the game gets better, but I never stuck around to find out. Leave 737 flying to professional pilots.

SkyChase, by Maxis, brings combat back into the picture, and with the widest variety of planes. You choose your fighter from seven different jets, including two MIGs. Hop in, and you're ready for a series of one-on-one dogfights. Unfortunately, SkyChase limits you to a single enemy and flies dull, wire-frame graphics over thoroughly uninteresting terrain.

The game's main redeeming feature is that, besides battling the computer, you can compete with a friend on one Amiga. Each of you gets one of the side-by-side displays and instrument panels. Unless you establish a fairness pact, SkyChase lets you end the dogfight with your friend too quickly: Just fire a missile the moment the two jets begin their initial flyby. To have a decent war, outlaw any shooting until the planes pass each other.

HOT SHOTS

For more strategic combat, take up **Harrier Combat Simulator** from Mindscape. I must confess that, while this one seems to be a good game, it did not catch my fancy. The main reason is that the game forces you to spend too much time on strategy, and not enough on fights and flight simulation. You have to find the enemy's locations before you can destroy them. This involves a long sequence of exploration, setting up and moving ground sites, and finally destroying the enemy headquarters.

The Harrier is a V/STOL (Vertical/Short Take Off and Landing) jet, so you can perform some interesting maneuvers. Even the flying and scenery is reasonable. If you like exploration mixed with your combat, I recommend you give Harrier a look.

For me, the top gun is, by far, **F/A-18 Interceptor** from Electronic Arts. It offers exciting missions and very good cockpit graphics and sound, including details such as the whine of the landing gear retracting. The scenery is decent, but the pace is so fast that you won't want to waste time looking around. F/A-18 Interceptor handles the most naturally of the bunch; I even enjoyed just flying it! The heads-up display is well-designed, and it puts all the necessary information where you can find it quickly.

The real excitement, of course, is flying missions, ranging from identifying an enemy plane to rescuing a downed pilot. Along the way, you'll have to battle squadrons of MIGs. Successfully completing a mission entitles you to attempt the next one. Before you embark on any mission, however, you must land on the deck of a carrier, which takes some practice. While the flying itself is very easy, you have to watch a lot of gauges and flip a bunch of switches to be a tailhooker.

As you try to finish each mission to qualify for the next, you will also run into Interceptor's biggest flaw: It doesn't give you enough information to complete some of the missions. For example, after a little prac- ►

Product Information

F/A-18 Interceptor
Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
415/571-7171
$49.95
No special requirements.

Flight Path 737
Anco Software USA Inc.
PO Box 292
Burgettstown, PA 15021
412/947-9922
800/992-9198
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Flight Simulator II
subLOGIC Corp.
501 Kenyon Rd.
Champaign, IL 61820
217/359-8482
800/637-4953
$49.95
No special requirements.

Harrier Combat Simulator
Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
312/480-7667
800/221-9884
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Jet
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tice I landed on the carrier and was ready to start my first mission, but nothing happened. Nothing in the documentation or the game itself explained what was wrong. Fortunately, a friend told me that you have to land on the carrier in the opposite direction from the way you took off.

Despite this, I love going at it with a MIG or two. Climb in and give it a spin yourself; you won't be sorry.□

Although not the type to be caged in an office, B. G. Hunter does skulk in occasionally to pick up his mail. Write to him c/o AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

GAME REVIEWS

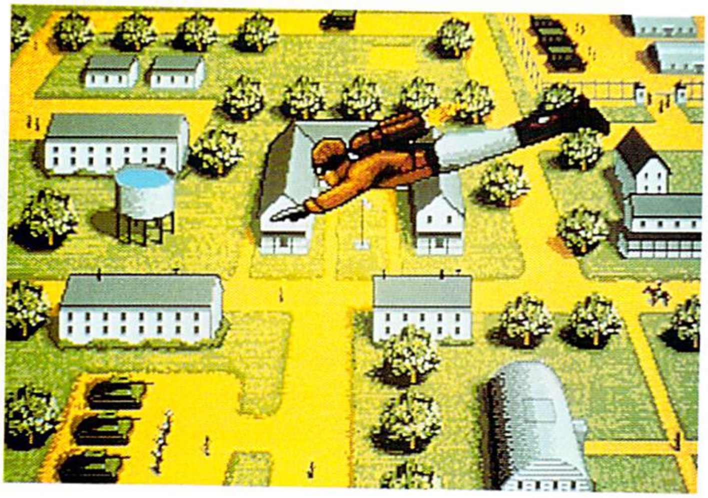
ROCKET RANGER

By Dodson Yaple

A BRILLIANT PROFESSOR and his beautiful daughter have been kidnapped by the Nazis. You must get into your rocket suit, chase down the fleeing Axis zeppelin, vaporize the enemy gunner without blowing up the blimp, and carry your beleaguered compatriots to safety. So goes the opening scene of Cinemaware's Rocket Ranger.

A series of arcade sequences built around a map-oriented strategy game, Rocket Ranger is beautifully detailed with high-quality graphics and animation, stereo sound effects, and digitized speech. Here is a superbly crafted tribute to the movie serials of long ago, complete with nefarious Nazis, zombie slave women, and rocket ships that look like the Chrysler Building. Where it exceeds Cinemaware's previous efforts, however, is in its seamless, perfectly calibrated play, and its insistent yet unobtrusive didacticism. You'll never become bored or frustrated during the game, and it will teach you more world geography in 30 minutes than you learned in all of high school.

Rocket Ranger requires your character to span the globe in a race against time to destroy the Axis war machine. The Nazis have reached the moon, and have begun mining lunarium, which fuels their spaceships, powers your rocket pack, and activates the dreaded Nazi bombs. Your job is to steal a few rocket parts, construct a spaceship, and then fly it to the moon for the final showdown. Along the way, you'll tangle with planes, antiaircraft batteries, machine-gun nests, Amazon she-devils, goo-spitting aliens, and a gaggle of fiendish Nazis. Your only defenses are your rocket pack and radium pistol, plus a wrist monitor and secret decoder wheel sent to you via time machine by concerned scientists from the future—a future that saw the Nazis win the war. The scientists are depending on you to change the course of history.



Strap on your rocket pack and soar!

While neither revolutionary in concept (it's frequently reminiscent of Defender Of The Crown) nor perfect in execution (menu selection is mildly awkward and the decoder wheel is hard to decipher), Rocket Ranger is nonetheless one of the best games on the market. It has that rare ability to convince you that, no matter how pathetic your previous efforts were, you are bound to win on the very next play. You probably won't, though—you'll just chuckle at Rocket Ranger's ingenuity and fire it up again.

Rocket Ranger
Cinemaware Corp.
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362
805/495-6515
$49.95
Joystick required.

TORCH 2081

By Louis R. Wallace

IN TORCH 2081, a remake of the arcade game Qix, you must maneuver your spaceship into an arena. As you move, you leave a trail. When you touch a wall, the area you have enclosed becomes yours. You advance to the next level when the total area you have claimed meets or exceeds the minimum required (the requirement increases with each level).

Inside the arena a fireball bounces from wall to wall. While it may appear to move aimlessly, it can track your ship, and occasionally it fires missiles at you. If a fireball or missile hits you or your trail, you explode and lose a life. Two deadly destroyers circle the arena, so you can't sit by and wait for opportunities. Your only defense against the various objects is to avoid ►

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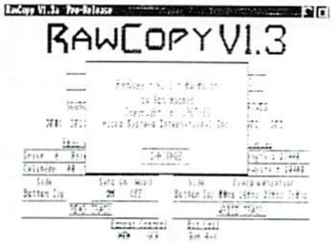
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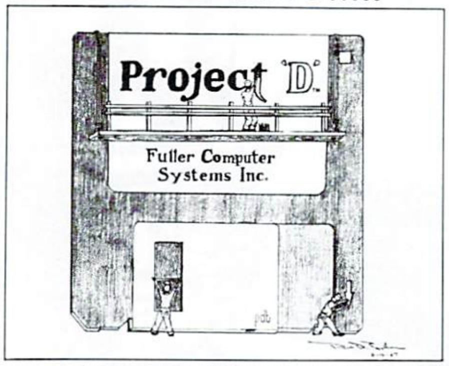
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them; you have no weapons at your disposal.

Every so often, a square appears in the arena. Capturing some squares can destroy you, but most give you a bonus—more fuel, an extra ship, or a bump to the next level. Every fifth level, you face two fireballs (but no border patrols); if you can put up a wall between them, your score for each level thereafter is multiplied. Higher levels don't contain new challenges, just faster-moving objects. Your score depends on the size of the area you claim and the amount of fuel with which you finish.

Torch 2081 asks you to enter a word from the manual upon bootup. While the game is easy to learn and play, it takes practice to master. Torch 2081 is not original or particularly enthralling, but Qix fans will enjoy it.

Torch 2081
Digital Concepts
28800 Gratiot Ave.
Suite 162
Roseville, MI 48066
313/772-1416
$24.95
Joystick required.

STREET SPORTS BASKETBALL

By Neil Randall

ALTHOUGH THE majority of sports simulations take place at the professional level, most of us only know what it's like to play sports at the local Y and the like. That's what Epyx's Street Sports game series is all about.

Street Sports Basketball pits two teams of three players each against each other. Two human opponents can play, or you can go up against the computer on three levels. Just like real street basketball, you must find a place to play, choose teams, and agree how many points will decide the game.

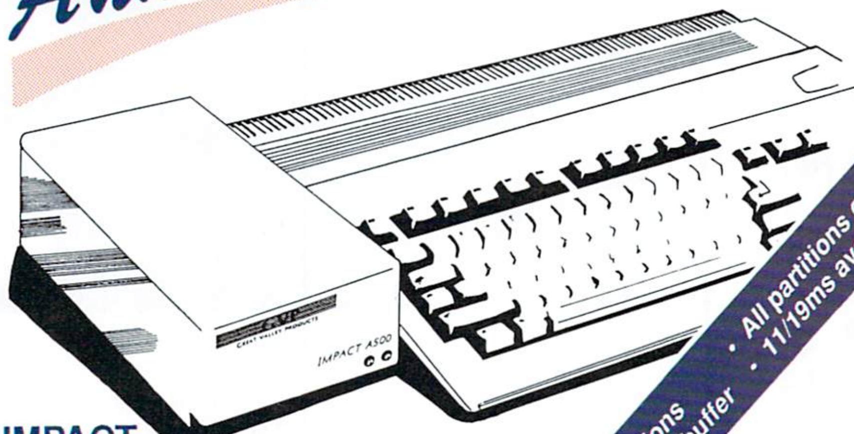
You can compete on a school playground, in a back alley, on a driveway in the suburbs with one basket attached to a garage, or in a city parking lot complete with oil leaks. Ten kids are eager to play: They range from Butch, the future superstar, to Brad, who is solid but hardly great. Magic is a whiz up close, and Kevin, nicknamed "The Brain," is extremely accurate but weak defensively. Melissa is my favorite because she does everything well.

Once you have determined the score needed to win, it's a matter of making the shots count. This is where Street Sports Basketball suffers, especially in one-player mode. The game is too easy. When one of your players runs for the basket with the ball, he or she dribbles automatically and flawlessly. Also, just a handful of moves are available. Turn the player toward a teammate and push the joystick button to pass, or charge the net and press the button to shoot; the player, not you, determines the type of shot. Long shots rarely make it in, and passes often go astray, as it should be. Defensively, you can run headlong into the opponent, thereby stripping him or her ►

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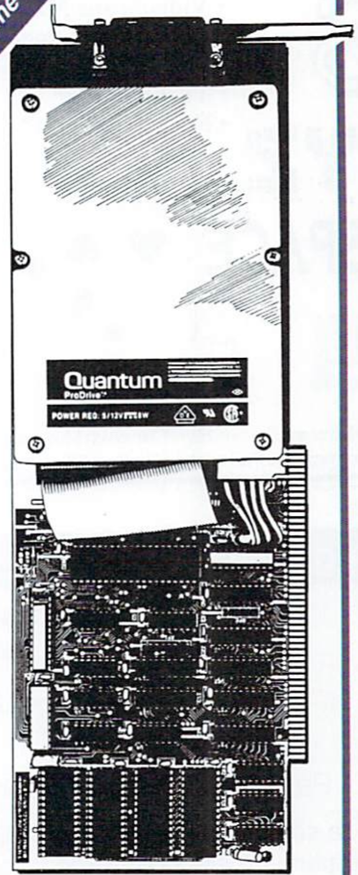
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Shoot hoop with the neighborhood kids.

of the ball, or you push the button to jump up and block the pass or shot. That's the whole game.

I won my first game against the easy computer opponent, 18-4. On the intermediate level I won three in a row. After eight tries in difficult mode, I was five and three.

The game is a great late-night relaxer for two friends, and it's a superb game to play with kids because they will cheer for Melissa or Brad much more eagerly than for Larry Bird or Magic Johnson. The graphics and sound are unspectacular, though, and the game pales quickly, so unless you have children or lots of stress, I can't recommend it. Too bad—the street sports concept is a good one.

Street Sports Basketball
Epyx
600 Galveston Drive
Redwood City, CA 94063
415/366-0606
$39.95
Joystick required.

Gettysburg: The Turning Point

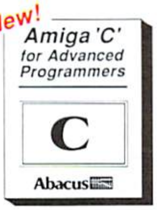
By Bob Ryan

A RE-CREATION OF the three-day battle between the Army of Northern Virginia and the Army of the Potomac in 1863, Gettysburg: The Turning Point challenges you to out-perform General Robert E. Lee and Major General George G. Meade.

You command either the Confederate or Union forces, while another person or the computer commands the opposing troops. The object is to accumulate points by inflicting casualties on the opposition, by minimizing your own casualties, and by occupying important victory positions.

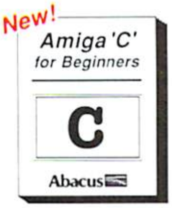
The Gettysburg game board is a colorful computer-generated map representing the terrain of the Gettysburg, Pennsylvania area as it was at the time. It is divided into 1872 squares which regulate ►

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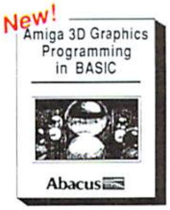
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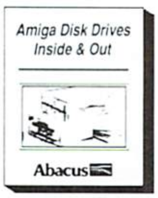
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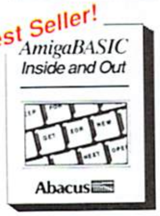
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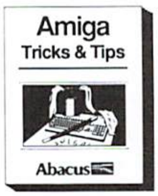
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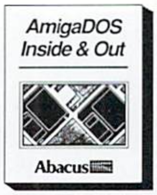
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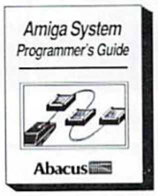
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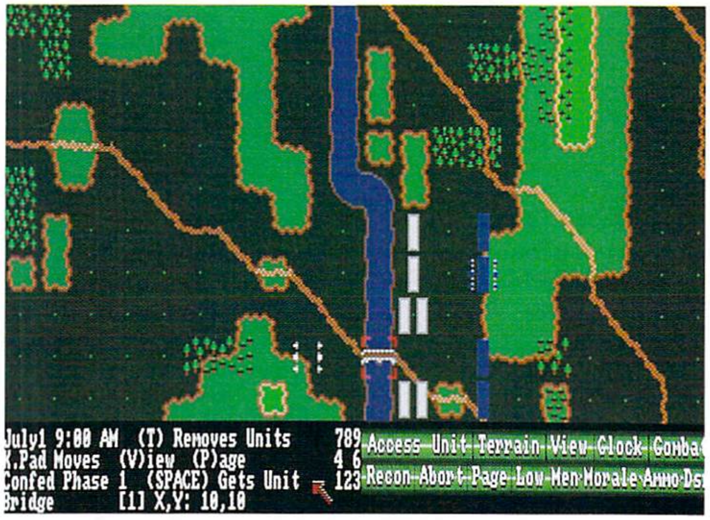
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the movement of your forces.

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Heth's Division of the Army of Northern Virginia attacks Buford's cavalry to open the Battle of Gettysburg.

The program's emphasis on the importance of divisional and corps cohesion is an accurate portrayal of how Civil War armies were organized and deployed. I found, however, that the program provides play commanders with information that was not available to Lee and Meade at the time.

Game play can slow to a crawl during the second and third days because of the sheer number of units on the map, and changing your mind by aborting a move takes a long time. I do not like the turn-oriented sequence of play, and found that raising the level of the computer opponent merely increases the lethality of its weapons, instead of increasing its ingenuity.

Despite these complaints, I think Gettysburg is excellent. I like the strategic and tactical challenges, and don't grow tired of discovering different lines of play. While I do not play past day one (the outcome of the actual battle hinged upon the initial fighting), and although the first day alone takes four to eight hours to play, Gettysburg keeps you interested until the outcome is determined.

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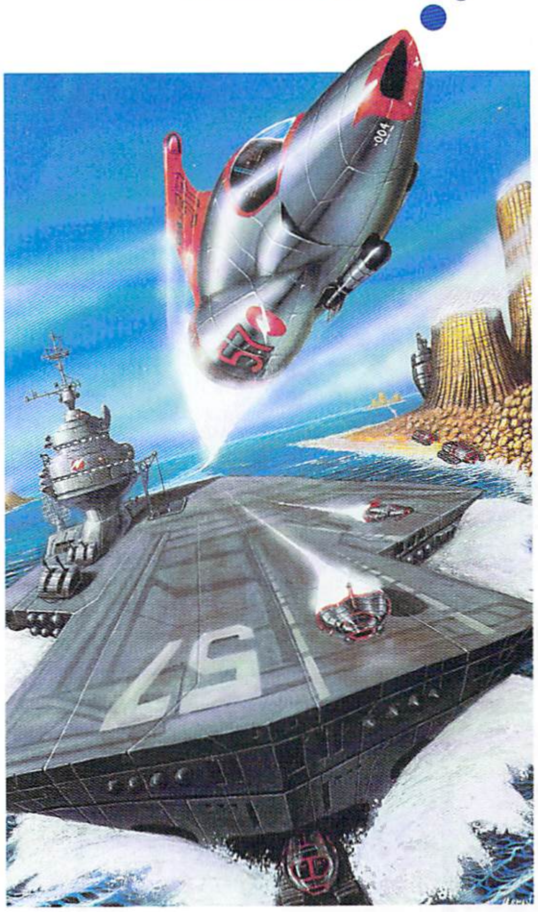
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WHAT'S NEW?

Don't look for the groundhog or his shadow this month . . . he's busy with these new products!

Compiled by Jan Jackson

SUM OF THE PARTS

SYNERGY PERIPHERAL SYSTEMS annnounces **Hard Disk Plus**, a hard drive for the A500 with SCSI host/controller. You can get the unit in 20- and 30-meg configurations ($749.95 and $899.95, respectively), or in custom format, which includes the installation of any hard drive you request. The unit comes with software utilities, and supports autobooting and the Fast File System. An optional two-meg RAM add-on sells for $269.95.

SCSI host/controller, hard-drive enclosure, power supply, cables, and software together make up the **Hard Disk CR** kit ($319.95) for the A500. Just add an embedded SCSI 3½-inch Seagate drive, and you've got yourself a complete system!

The **SCSI Host 2000** controller auto-configures, auto-boots from your hard disk, and supports the Fast File System. You can mount any 3½-inch slimline hard drive on the card, which retails for $179.95

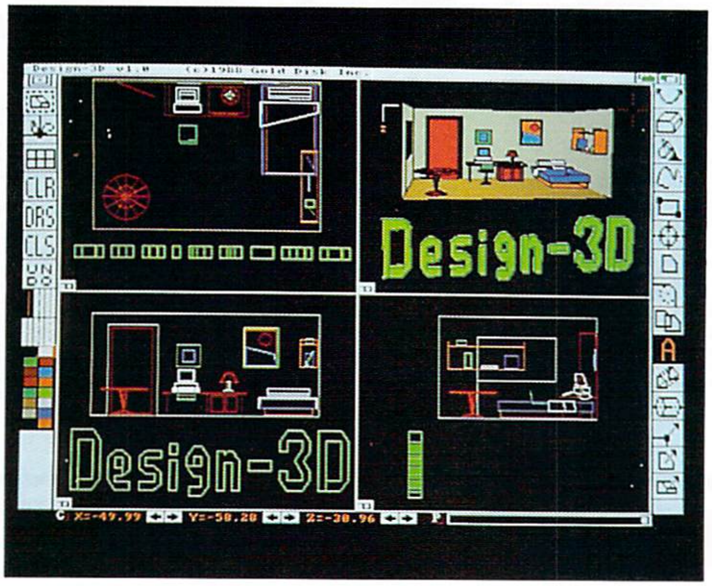
You can get the sum total, or any part, of this hardware line from Synergy Peripheral Systems, 5638 Allen Ave., Suite 3, San Jose, CA 95123, 408/972-2434.

I CAN C FOR MILES

LATTICE C for AmigaDOS Version 5.0 gives full support for 68020 and 68030 processors and 68881 math coprocessor chips. Lattice Inc. promises faster library routines from improved algorithms and assembly-language coding and offers improved ANSI compliance. The Lattice Screen Editor is now part of the compiler package. A full-screen source-level debugger with symbolic and concurrent process support allows you to open multiple windows and single step through programs, set breakpoints on C source lines, and examine variables and code at the C language or assembly-language level. The assembler will generate 68020 and 68881 instructions. Other improvements include an updated disassembler, a new global optimizer, a new code profiler to improve efficiency, and a utility to convert Commodore FD files into pragma statements. The complete package is $300; upgrades are available to regtistered users for $75. The new version is available form Lattice Inc., 2500 S. Highland Ave., Lombard, IL 60148, 312/916-1600.

DESIGNING MINDS

ADD A NEW demension to your creativity with a modeling package. For $99.95, Gold Disk's **Design-3D** lets you model in wire frames with six line types and 16 colors plus dithering and flat shading. Four views are provided—top, side, front, and perspective—with four light sources. Axial extrusion allows symmetrical modeling, or objects can be imported from VideoScape 3D (Aegis). Design 3-D supports text. The package includes fonts and a font editor. For more information, call Gold Disk, PO Box 789, Streetsville, Mississauga, Ontario, Canada, L5M 2C2, 416/828/7754.



Create spatially with Design-3D.

PAGErender 3D from Mindware International is a professional 3-D rendering and animation system that comes with stereo-vision glasses. You can build or restructure your own objects or use the object library. With the tools provided, move your images along a path or make them accelerate, decelerate, rotate, or spin. PAGErender 3D sells for $159.95 from Mindware International, 110 Dunlop St. W., Box 22158, Barrie, Ontario, Canada L4M 5R3, 705/737-5998. ►

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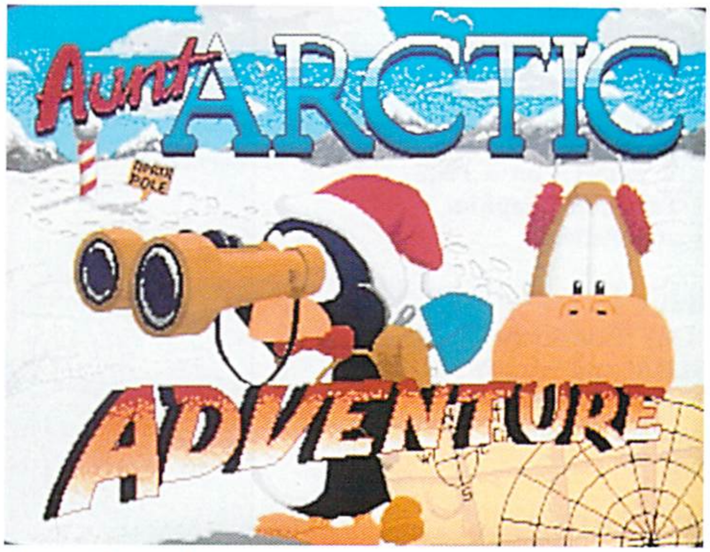
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Circle 152 on Reader Service card.

FROZEN FREEDOM FIGHTERS

WHERE IS ADMIRAL Byrd when you need him? Mindware International's **Aunt Arctic Adventure** plants you in the great white north with Charlie the Chimp and Penguin Pete to help rescue Charlie's aunt from Big Boris, the evil ringmaster. For $39.95 you get a 50-level arcade game that supports two-player team play or solo modes. Mindware International is located at 110 Dunlop St., West, Box 22158 Barrie, Ontario, Canada L4M 5R3 705/737-5998.



Keep a stiff upper lip; help is coming.

MORE ADVANTAGEOUS

AN INVESTMENT-analysis program, **Investor's Advantage 2.0**, now prints sequential lines in different colors, and you can combine different studies (old and new) on one screen. The upgrade promises a more flexible interface, more plot points for on-screen graphs, zoom capability for graphs, and numerical readouts of price and moving averages. Advantage 2.0 requires an investment of $99.95 for first-time buyers; registered owners can upgrade for $25 (updates are free for purchases after May 1, 1988). Your broker is Software Advantage Consulting, 37346 Charter Oaks Blvd., Mt. Clemens, MI 48043, 313/463-4995.

GOOD FOR THE ENVIRONMENT

DIGITAL DYNAMICS introduces **SNIP**, a digital signal-processing program that promises to provide a flexible, interactive environment for analyzing signals from a range of instrumentation. Snip is geared toward users with scientific applications in mind. You can display more data on the screen at once by presenting numbers in graphs. Subsets may also be displayed upon request. Snip loads up to 20 channels of data, performs calculations between subsets, and is capable of displaying up to 20 subsets simultaneously. Snip is available for $495 from Digital Dynamics, 739 Navy St., Santa Monica, CA 90405. ►

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East Comes West

STRAIGHT FROM the U.S.S.R. comes **Tetris**, a puzzle in motion requiring fast thinking and quick reflexes. Designed by two Soviet programmers, the game is available from Spectrum Holobyte. Two versions are combined in one package for $34.95. Spectum Holobyte can answer any questions: 2061 Challenger Drive, Alameda, CA 94501, 415/522-3584.

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Memories

THE **SIN 500-2 Internal Memory Expansion Board** is expandable to one half, one, or two megabytes and requires four chips per half meg. The memory autoconfigures in the standard Amiga expansion range with RAM on/off. The board is available for $299 (unpopulated) from Spirit Technology, 220 West 2950 South, Salt Lake City, UT 84115, 801/485-4233.

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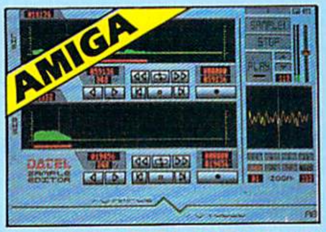
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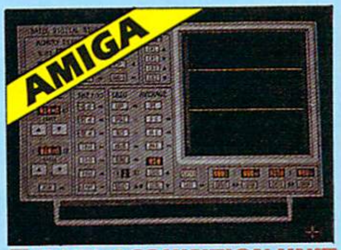
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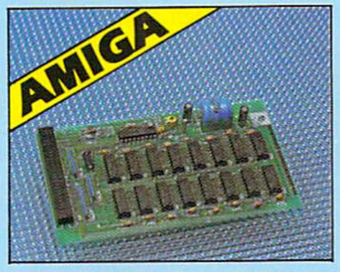
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HELP KEY

Having finished all the chocolates, Sweet Lou indulges in his favorite treat—a heart-shaped box of questions.

By Louis R. Wallace

HARD HOOKUP

Q: *I have an Amiga 1000, and would like to add a hard drive. Can I connect a hard drive directly to the expansion port?*

F. Bush
Vacherie, LA

A: You can add a hard drive to your A1000 via the expansion bus, but you will need a special hard-drive interface for the A1000. You cannot connect a hard drive without an interface; attempting to do so could cause damage to your computer and hard drive. Make sure that the interface allows the computer to autoconfigure, that is, automatically recognize the drive on start up. A number of companies, such as Supra, C Ltd, and ComSpec, make hard drives and interfaces for the A1000.

UNCHARTED

Q: *Do you know of any software that performs project management functions such as pert charts, milestone charts, critical path, etc.? Also, is there anything that will turn an IFF graphic file into an ASCII file?*

E. Stanzak
Boonton, NJ

A: I haven't seen any project management software yet. The closest thing is a series of advanced statistics programs from Lionheart Software (PO Box 379, Alburg, VT 05440).

To convert IFF graphic files to ASCII, you need LaserUp! Print from S. Anthony Studios (889 De Haro St., San Francisco, CA 94107, 415/826-6193), which converts IFF files into the EPS (Encapsulated PostScript) format so they can be transferred to other systems.

CRASHING BRIDGE

Q: *I am having problems with my Bridgeboard. When I play some IBM games, the IBM side crashes, and an Amiga requester appears with the message "Lock List Corrupt." With some productivity packages, when I double click the right mouse button, yellow flashes appear on the screen, and the system crashes. My biggest problem is that I can't use a joystick from the Bridgeboard. Any ideas?*

B. Bernard
Erie, PA

A: I don't know what is causing the crashes. My experience with the Bridgeboard has shown it to be a fairly compatible PC clone. I have no doubt, however, that some PC software (especially games) could crash it. The 1.3 Amiga operating system upgrade contains a new version of the Janus library and a new set of PC Tools to work with it. Perhaps the upgrade will solve your software problems.

As for a joystick, most PCs do not come with a gameport as standard equipment. You will need to buy an expansion card that has a gameport (most multifunction PC cards have one). You will also need a special joystick because Amiga joysticks won't work with a PC.

AT RANDOM

Q: *I am writing a program that chooses random numbers using the INT and RND functions. How do you reset them using the RANDOMIZE statement?*

J. Christensen
Kenosha, WI

A: The RND function has three variations. The first uses a negative argument, for example RND(−1). When you supply a negative value, it resets the random number generator to the first number in the sequence. If you generate ten random numbers, then issue a RND(−1) and create another ten random numbers, the second ten would match the first ten. The second format uses any number greater than zero for an argument, such as RND(1), or no number at all (just RND). This returns the next number in the random number sequence. The third format uses zero as an argument, and it repeats the last number generated.

To reset the random number generator to a new sequence of values, use the RANDOMIZE command. It accepts any number from −32768 to +32767 as its argument; each of the 65,536 values will generate a different sequence. If you simply use RANDOMIZE by itself, program execution will stop until you enter a new seed value.

The best method is to use the syntax RANDOMIZE TIMER, which seeds the random number generator with the number of seconds that have elapsed since midnight.

WHERE'S BOB?

Q: *I was told that I could make my A500 IBM compatible by getting something called Bob's Board, and buying an IBM case and disk drive. Is this legitimate? If so, where can I get it?*

C. Atkisson
Fremont, CA

A: What you were told was a case of mistaken identity. Bill's Boards Bus Expander from Comp-U-Save is an expansion board (not a chassis) that will allow you to add Amiga 2000 and IBM slots to an A500 or A1000. Combine Bill's Board, an IBM AT case, a power supply, Commodore's A2088 Bridgeboard, which provides very good, although basic, MS-DOS compatibility, and an A500 (and about four feet of desk space), and you have an A500 with MS-DOS abilities. Contact Comp-U-Save at 414 Maple Ave., Westbury, NY 11590, 516/997-6707. ■

Creative Computers

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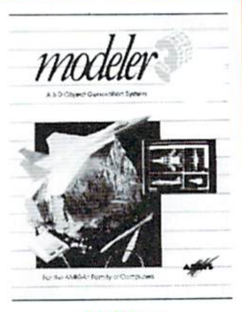
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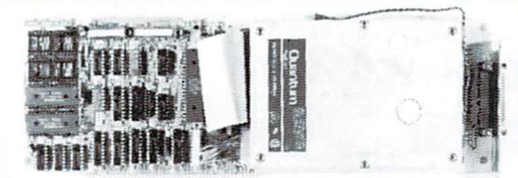
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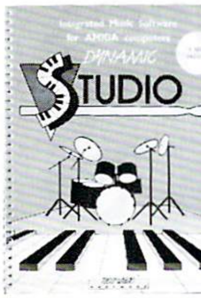
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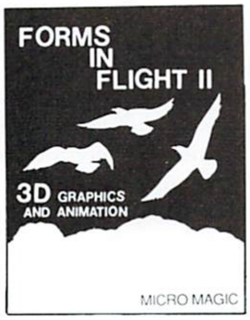
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Circle 199 on Reader Service card.

from p. 18
productive about this? In an instant, the worst has happened: You're working.

You're producing pages of comics: laying out panels, pasting clip art into them, and customizing the characters and backgrounds with DeluxePaint II (Electronic Arts)-style drawing tools. When you've perfected your creations, you'll direct them to any one of a variety of color, black-and-white, or laser printers. If you have a copy of Professional Page (also from Gold Disk), you might even turn out four-color separations for use with an offset printer—that would really be productive.

Bedrock Drawing

Though stylistically closer to "The Flintstones" than to "Doonesbury" or "The Far Side," ComicSetter printouts look pretty much like real comics. The output is great for off-beat greeting cards, cartoons for the office bulletin board, or even advertising art. ComicSetter is geared for the casual doodler, though, and using it to create the exaggerated perspectives and fine lines of true comic art is difficult at best.

Unless you have some drawing talent, your efforts will be restricted to variations on whatever clip art you're able to dig up. One disk of art is included with ComicSetter, and Gold Disk offers several others separately; you can also import IFF files. Except for one figure in a spacesuit, none of the characters on the included disk are clothed. Fortunately, you can use the Fill tool on these naked guys, so they appear to be wearing skin-tight costumes of whatever color or pattern you choose. You can then add detailing with the Draw tool, though this is a bit tedious.

While you may be able to individuate your characters with costumes, you can't avoid having to position them in one or another of the same old heroic attitudes. The clip-art pieces don't always fit together precisely, either—you can't just grab an arm with the mouse and stick it on a torso. Instead, you must type in a pair of coordinates to line up the sections, and finding the right ones is a time-consuming trial-and-error affair. Also, you can't rotate or reorient any of the parts, which I found especially confining. Occasionally, my backgrounds were destroyed for no apparent reason, and memory was tight, even with two megabytes (twice the nominal minimum).

One of ComicSetter's better features is the flexible handling of speech balloons—you have complete control over every imaginable parameter to make them look just right. (The clip-art disk contains such standard effects as POW! and BLAM!, but if you want to say something like EEEEYAAAAH!, you'll have to write it yourself.) Another welcome capability is scaling, which lets you resize any graphic—if you want to reduce a panel, you don't have to crop it. A sophisticated curve-drawing tool gives you painting power.

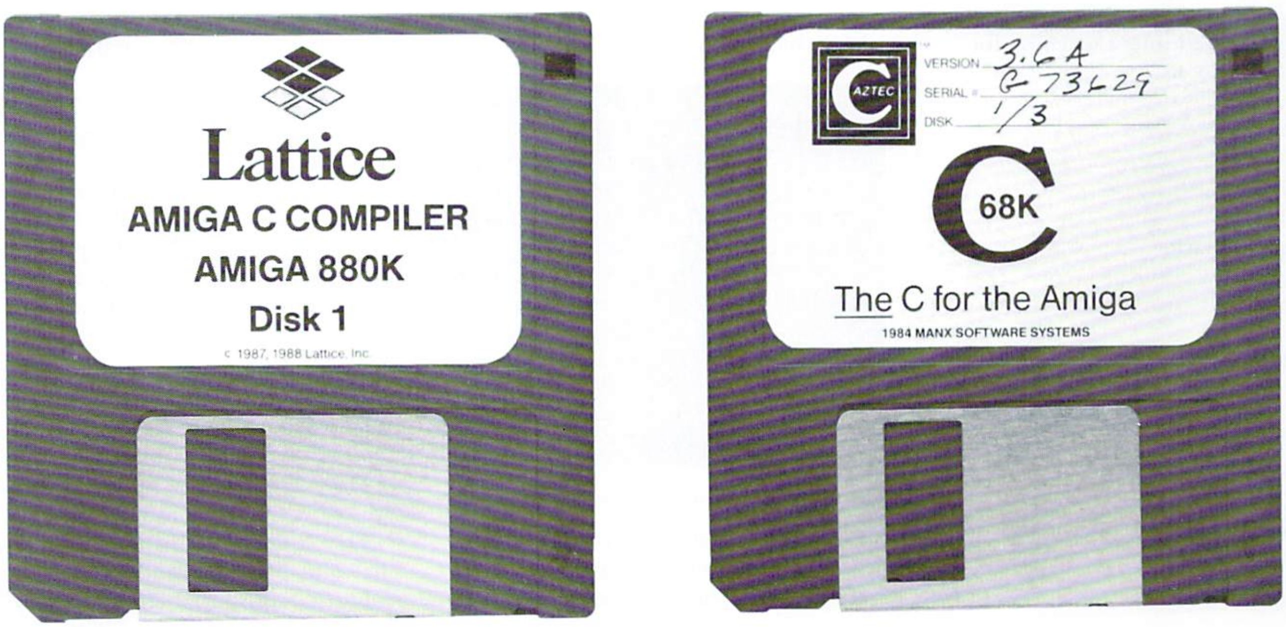
Put It in Print

Seeing your first printed pages, especially if you have a color printer, is a lot of fun. The print options are many and varied. Be sure to experiment with all the parameters until you find the most advantageous combination, as there's quite a bit of variance in speed and print quality. A few early copies of ComicSetter contain unusable versions of both the printer device and at least one printer driver (Epson), which were inadvertently placed on the disk. In the unlikely event that you receive one of these copies, you can either return it for exchange, or simply replace the defective items with those from your Workbench ►



Import characters that you've created in a paint program, then add one or more of the heroic types who call the clip-art disk home.

VROOM VROOM. SPUTTER SPUTTER.



Introducing new Lattice C for Amiga DOS, Version 5.0.

In recent benchmarks, Lattice C 5.0 was off to the races before Manx 3.6 was even off the starting line. In fact, statistics prove that no other language, no other compiler, gives you faster, more efficient programs. Period. And it now supports 68020 and 68881.

BYTE* Benchmark	Lattice C 5.0	Manx C 3.6	% Difference
dhampstones	42.4	62.7	32%
dhrystones/sec.	1605	1017	58%
matrix manipulation	15.7	50.4	68%
scbigrd	70.2	82.8	15%
sorto	76.4	110.9	31%
sieve	34.4	40.5	15%

And it's the most comprehensive, exclamation point. Nothing else gives you such a complete programming environment. All these tools and utilities are included in the Lattice C 5.0 package:

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Our new, easy-to-use, Source Level Dubugger, *CodeProbe*, supports both C and Assembly language, and multi-tasking debugging. And our new Global Optimizer will actually *enhance your programs' performance up to 40%.*

So choose Lattice if you want to program on the fast track. Or choose Manx and finish at the back of the pack.

To purchase Lattice C 5.0 or for more information, see your favorite software supplier.

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Circle 23 on Reader Service card.

disk. (I couldn't get ComicSetter to work with Workbench 1.2 drivers, but had no problem with the 1.3 release.)

ComicSetter's manual is logical and complete, but the program is so intuitive that you will rarely need it. Extremely fast file requesters exemplify the solid attention to detail throughout. ComicSetter has no unseemly copy protection, and multitasks politely. It even has a certain absurdist charm: You can't dismiss a product that transforms the most powerful tool yet created into a machine for making comic books.

ComicSetter
Gold Disk
PO Box 789
Streetsville
Mississauga, Ontario
Canada L5M 2C2
416/828-0913
$99.95
One megabyte and printer required.

INVISION

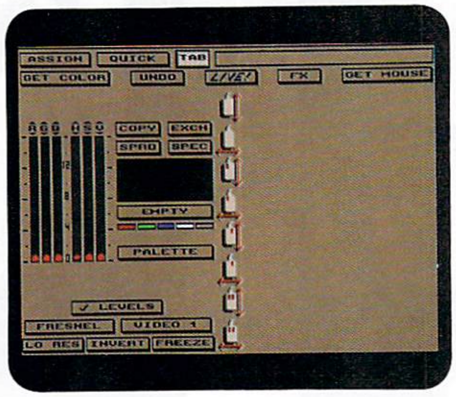
For Live!-ly effects.

By Gary Ludwick

INVISION TRANSFORMS YOUR Amiga into a full-fledged video-effects board. Working in tandem with A-Squared Systems' Live! real-time digitizer, this software, from Elan Design, allows you to alter Live!-captured images and sequences extensively.

The concept for Invision comes from the world of audio recording: An audio-mixing board has an input channel for every instrument and voice being recorded, and each of these contains a series of controls for customizing sound. In both applications, the controls are called presets.

Invision passes command for the presets to your computer keyboard. You can



Just move your mouse for more effects.

program each alphanumeric key to deliver a customized effect instantly and in real time, or to call up images from paint or titling programs or animation sequences, and mix them with your video input. The package comes with several libraries of effects assigned to keys. The number of libraries you can create is limited only by your imagination.

Invision runs from Workbench and is not multitasking. Clicking into the program brings you a full-screen hi-res representation of the Amiga keyboard, along with a directory panel and bank of buttons for choosing among disk drives, moving and copying files, jumping to the Live! image, editing effects, and more. The key libraries reside in a directory called Environments. Loading an environment causes every programmed key to turn white on the display. Hitting the Live! button at this point displays on screen whatever video is flowing through the digitizer.

Now the fun begins! Tap any programmed key and instantly your Live! video changes to reflect the preset effect. Play the keys like a piano and the video displays the variations instantly.

SET 'EM UP

Pressing the Escape key returns you to the Environment screen. Select any key (on the display or on the computer keyboard), click the Edit button, and you are ready to create an effect for that key.

The Preset screen is where you assign the color palette, resolution, brightness, contrast, and special effects to your key. Invision works with up to 32 colors (64 if your Amiga supports Extra_HalfBrite mode). You can create full-color palettes, gray scales, and monocromatic scales. For high contrast, use just black and white. ►

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THE TOP 10

☐ **#131 PacMan '87** - Great sound and graphics. Adds new elements to PacMan. Saves Top 10.
☐ **#127 Wheel of Fortune** - A great computer version for multiple players. It even talks.
☐ **#23 Monopoly** - Enjoy great graphics and sound while playing three tough computer opponents.
☐ **#37 Business Programs** - Included are an address book, an amortization program, a talking mail manager, and a label printer.
☐ **#27 Amoeba Invaders** - A better Space Invaders!
☐ **#140 Virus Killer** - Everyone needs this! Makes it easy to detect and eliminate known viruses.
☐ **#115 Word Processor** - Lots of features.
☐ **#134 Applications** - Label maker/printer, grocery list maker, and AMIGazer - a star viewing program.
☐ **#142 Q-Bert** - Like the popular arcade version.
☐ **#139 Bull Run** - Great Civil War strategy board game, with impressive graphics and sound.

THE BEST OF THE REST

BUSINESS/HOME

☐ **#116 Business II** - VC-Spreadsheet, HP-10c calculator, and several diversions for when the boss isn't looking!
☐ **#117 Business III** - DataBase, a bunch of great new fonts, RSLClock-great clock utility, AmigaSpell.

LANGUAGES

☐ **#9 FORTH** - Two versions of the FORTH programming language.
☐ **#50 XLISP** - A version of LISP, the artificial intelligence language. Includes documentation.

COMMUNICATIONS

☐ **#4 Communications** - Starterm and Aterm are both included. Both run from Workbench or CLI and are comparable to communications packages selling for $50+. Full control of baud rates, phone directory, all protocols, auto chop of files, and many other extras. Works well with the Avatex 1200 modem and others. Source code included.
☐ **#90 Modem Madness!** - Terminals include StarTerm, ATerm, and Kermit. Telecommunication utilities such as Archive are also here. Other types of programs and utilities are also included in the price of admission.

UTILITIES/APPLICATIONS

☐ **#60 AmigaBasic** - Two programs that are truly of commercial quality, Cell-Animate and Graphit. Some Deluxe Paint picture files are also included.
☐ **#97 Tutorial Disk1** - A disk full of information and programs to instruct Amiga Programmers and users. Several C & ASM source files are included.
☐ **#98 Tutorial Disk2** - More of the best of Amiga Information.
☐ **#101 Utilities** - Many new utilities like Timeset - a time setting utility and DirCopy-a great copier (very quick), and about a dozen more. Some new fonts are also included on this disk.
☐ **#105 Potpourri I** - This disk contains several different kinds of programs, some of the highlights are: PopCLI2-evokes a new CLI window at the press of a button; PSound-sample sound recorder and editor; 3-D Breakout; DiskCat-catalogs and organizes disk files; IconMaker-makes icons for most programs so that they can run from Workbench; FKey-template maker.
☐ **#129 Amiga Utilities II** - A hard disk backup; Target-sounds a gunshot whenever the left mouse button is pressed; Dpaint Tutor; WinSize-change window size from CLI easily, and lots more.
☐ **#130 Videomaker Utilities** - This disk is packed with utilities to make your desktop videos easier to produce and more professional looking.

☐ **#133 DOS Helper** - A program designed to help you with the AmigaDOS commands. Can be activated from icon of the CLI. Supports multitasking, so that you can refer to it when you need it. As usual, there are other good programs included on the disk.
☐ **#135 Applications II** - Long Movie-plays several IFF pictures in fast succession, creating animation. QuickBase-a mail manager DBase. Persmait-a DataBase for keeping records of friends, family, associates, customers or employees. MORE.
☐ **#146 Calendar** - A very good personal calender for birthdays, holidays, meetings, bills and other events. Excellent graphics. Calendar program also has a diary. Other programs include some graphics and Checkbook.
☐ **#150 Textcraft+ Demo** - A demo of a very good word-processing program of high quality. Menu driven. Has a lot of helps to show you how. Textcraft+ also has a Speller Check available.

SOUND/MUSIC

☐ **#18 Future Sound Demo** - Another great sound demo of digitized sound. Includes the wicked witch of OZ, breaking dishes, sea gulls, car crash, ducks, others.
☐ **#30 Super Sounds** - Great digitized sounds from movies like Star Trek, 2001, James Bond movies, Star Wars, and Starman, Is it real or is it the Amiga?!!!
☐ **#77 Instruments** - Turn your keyboard into 25 different musical instruments.

SLIDE SHOWS

☐ **#1 Norman Rockwell** - 17 beautiful digitized Rockwell paintings in this self-running slideshow presentation. You've got to see these!
☐ **#55 EA Demo and Polyscope** - More great graphics for your enjoyment.
☐ **#67 DPSlide8** - Over 30 slides of all sorts on this self-running slideshow.
☐ **#94 Diga-View** - This one shows the digitizing process in stages. Several good pictures are included. Other programs also included.
☐ **#95 DigaSlide11** - Another in the great series of slideshows with great artwork. Self-running with over 25 pictures.
☐ **#108B Juggler** - Famous demo that shows the beautiful graphics of the Amiga and just how powerful this program is. It is easier to run than 108A, but only has the one demo on it.

GAMES

☐ **#38 Basic GrabBag2** - Around 25 programs of various types. Many of these are must-haves. At less than $.20 each, you can't go wrong!
☐ **#44 Games3** - More great games including Life, Vegas Slot Machine, Reversi, others.

☐ **#52 Basic Games** - Tons of ABasic games - discover some treasures!
☐ **#61 ABasic GrabBag1** - Only about 100 of all types!!!!!
☐ **#102 Sinking Island** - Return to Sinking Island is an excellent adventure game. Well worth the price - hours of enjoyment!!!
☐ **#114 Potpourri X** - Othello, A key-shortcut program for AmigaDos. Various new tools, automatic printer-driver generator, much more.
☐ **#118 Great Graphic Games** - Includes Missle Command, 2-D Triclops, Cosmo-asteroids clone, BrakeOut, Yatzee, Hack and more.
☐ **#121 Backgammon** - A great game from David Addison.
☐ **#122 Solitaire** - Two versions by David Addison.
☐ **#123 Cribbage** - Take on the computer or a friend.
☐ **#124 Milestone** - A great computer version of Miles Bournes by the author of Monopoly for the Amiga, David Addison.
☐ **#125 Othello** - A great 3-D version of this popular game.
☐ **#128 Space Games** - Cosmoroids (like asteroids) and Gravity Wars highlight this disk just full of games.
☐ **#137 Blackjack** - A full-featured game which allows pair-splitting, double-down, etc. Bandit-play the slot machines without going to Vegas!!! More.
☐ **#141 Dominoes** - Dominoes game with great graphics. Also Tic Tac Toe, Drawing and Molecules programs.
☐ **#147 Jackland/Graphics** - Adventure clue game. Also some great pictures (graphics), a useful utility called Quickbase, and a fun program called Thingies which you will enjoy!!!
☐ **#148 Boulder Dash** - Very popular game with excellent graphics and has several challenging levels. This disk is full- It has Othello, Life3 and many useful utilities.
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Most of the palette controls that you find in paint programs are here, including copy, exchange, spread, and spectrum.

Also in this screen are three one-shot effects that will take place each time you push the key. These are: Lo/Hi (resolutions), Invert (turns the image upside down), and Freeze (grabs and freezes the current Live! image). Another control, Color Sensitivity, is a series of boxes that lets you sensitize your key and palette to specified colors in the video, much like putting a color filter over your camera lens.

Invision doesn't stop at 38 keys—it employs the mouse, as well. The two buttons and the up-down and side-to-side movements add another four effects to your repertoire. Unlike the keyboard effects, which are static, mouse effects are moving. The real-time capacity takes on a new light as you roll the mouse around and press its buttons.

The long list of available mouse effects includes control over saturation, hue, value, brightness, and contrast. You can introduce color cycling in forward and reverse, and select Nuke (a glowing radioactive look), Strobe, Blinds (venetian-blind result), Mirrors, Mosaic, and Zebra (two-color high-contrast striping). Each of these effects is influenced by the color map (including palette, hue, and so on) assigned to the key; change the map and you can drastically alter the look.

With the SuperGen assignment, you can command a SuperGen (Progressive Image Technology/Digital Creations) genlock: Moving the mouse up and down adjusts the fade rate and level of Amiga graphics, while side-to-side motion regulates background video.

When you consider that most of Invision's features are almost infinitely variable, you begin to get some sense of the scope of this product!

Mixing a Medley

Invision supplants normal Live! software and controls the digitizer directly. Tap the designated capture key (you can give capture/playback capability to any number of keys) and you have a single frame. Hold it down and Invision will capture a sequence of frames until memory is filled (my 2½-meg system could hold about five seconds of moving video).

One or more keys can also be designated to display IFF files from disk. Finally, a mixing key combines these IFF frames with live video from an outboard source such as a VCR or camera. If all this sounds like too much to remember, Elan Design includes blank templates for you to label each key's function.

Images captured from live video sources can be stored or saved to disk as IFF (single frames) or RIFF (a series of frames) files. Once saved, you can load these images into other IFF-compatible programs and manipulate them further.

You can mix frames in front of or behind a moving image. Hitting the key to which your frame is assigned and then pressing your mix key (which can also carry a range of effects) displays the two images on screen simultaneously. With a genlock, you can add a third layer.

The Layout

I encountered only one problem using Invision: By holding down a capture key, you can eat up so much memory grabbing frames that the program has no room left to function. You can also store more video than an empty disk will hold, ►

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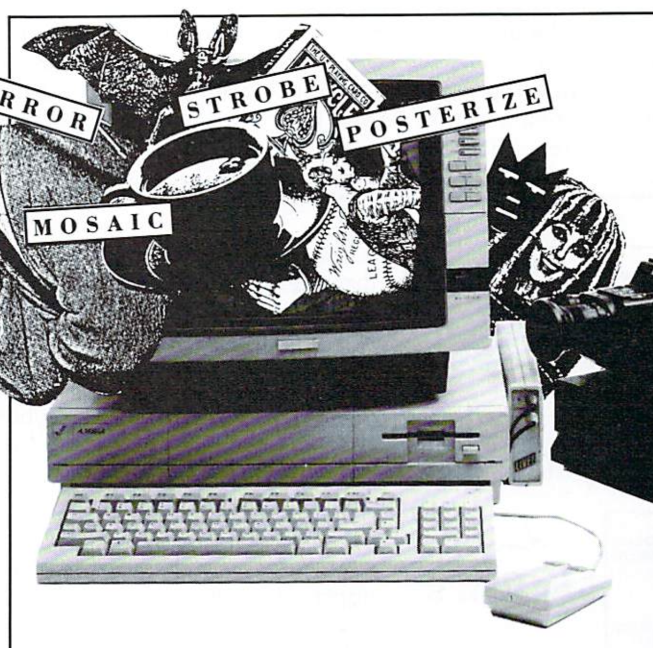
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Moving video can be captured to different keys on the keyboard. To display a sequence, just press the key on which it was captured. Then you can use the mouse to play it back and forth, or the arrow keys to single-step through the frames. Or by tapping a capture key, you can grab one frame at a time to perform stop action or video cel animation.

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and Invision doesn't know whether you have room until it tries. Fortunately, neither event causes the program to crash; you can clear frames from memory to recover control.

Invision's manual is clearly written in conversational tone, and the layout and design are superb. It folds into a tabletop flip chart. Each page is divided into three columns: On the left is a page summary, in the center is a numbered set of instructions, and to the right, the keypressing sequence echoes the instructions.

The program disk is not copy protected. Tutorials and demos do an excellent job of getting you up and running quickly, and the screens are clear, well-designed, and intuitive. Finally, Invision includes a file called Performer, which lets you show your IFF and RIFF files on Amigas not connected with Invision or Live!

Invision is excellent all around. Everyone who owns Live! should have a copy; it expands the digitizer's capabilities tenfold. (By the same token, a set-up that includes Invision and Live! but not a genlock seems akin to having a car with no wheels.) If you don't own Live!, this program might be reason enough to justify a splurge.

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Live!, video source, and two disk drives or one hard disk required.

PROJECT D RAWCOPY 1.3

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By Denny Atkin

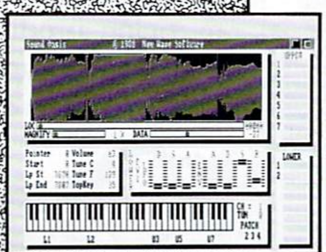
WHILE COPY PROTECTION is an effective way for software developers to guard their investments, that's little consolation when your word-processing disk gets a read/write error an hour before your report is due. Project D from Fuller Computer Systems and RawCopy 1.3 from Micro Systems International allow you to make archival backups of copy-protected software.

PROJECT D

Project D's main screen is similar to Workbench; from here you can access the program's various tools and utilities by double-clicking icons. The tools are so easy to operate (the program employs gadgets and pull-down menus) that you should have little need to reference the excellent 16-page manual.

The Project D package contains a disk editor, disk-catalog manager, and a special non-Amiga format copier, in addition to BackupTool, the main utility that duplicates standard AmigaDOS disks and copy-protected software.

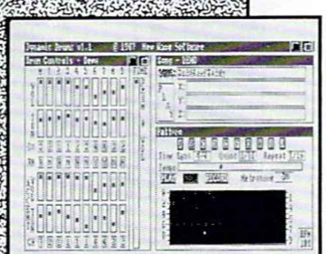
The BackupTool screen is divided into four sections. The Backup Control Selector lets you choose whether to verify that data written to the destination disk matches the source disk. The Selector also lets you toggle an option to make multiple copies without rereading the source disk (you must have at least two megabytes of RAM to do this). The Drive Configuration Selector displays boxes depicting available source and destination ►



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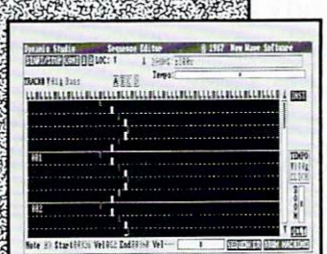
The internal sound capabilities of the Amiga are better than that of any other personal computer. These capabilities mean nothing though, without quality digital sounds, which up till now have been scarce. Sound Oasis gives Amiga owners access to a large library of studio-tested digital samples, by using the Amiga's built in disk drive to read disks made for the Mirage Digital Sampling Keyboard. Sounds can then be played from a MIDI keyboard, the computer keyboard, or saved as an IFF standard file. Mirage is a trademark of Ensoniq Inc.



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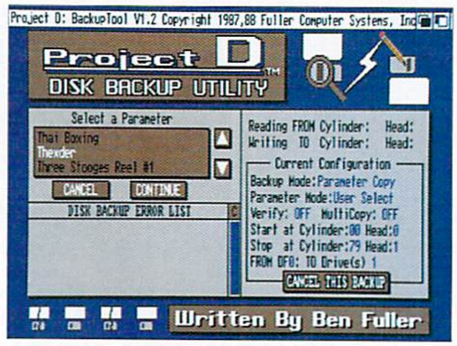
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drives; you can make up to four copies at a time, provided you have enough floppy drives. Using the Track Position Selector, you select tracks—from 0 to 81—to start and stop copying (while normal AmigaDOS disks stop at track 79, some disks add extra tracks as a form of protection). The final section provides a listing of read/write and status errors that the program encounters during the process. If Project D discovers a nonstandard track on the disk, this window will report the track, drive, cylinder, and head number of the error.

Three copy options are available from the Backup menu. AmigaDOS, the default, is for standard non-copy-protected disks. Parameter is for use with most copy-protected software. The program's parameters let you copy over 120 commercial packages, and you can get parameter-file updates quarterly from Fuller Computer Systems for $7.50. Selecting AutoMAGICally tells the program to identify and use the correct parameter, but you can choose your program by name from the parameter list if you prefer. (Even if a parameter is not listed for a particular program, you can often copy the disk successfully.) Finally, Index Sync lets you copy disks that are formatted with the starting points of each track aligned.

Once you have selected a copy option and your source and destination drives, click the GO! gadget. With Project D, the average duplication procedure takes 80 seconds; this is the fastest copy program I have used. If you have only one disk drive, or are making multiple copies simultaneously with fewer than two megs, the program will prompt you to exchange disks periodically.



Specify which tracks you'd like to copy.

The Project D toolbox also includes OmniTool, which copies MS-DOS, Atari ST, CP/M, and Xenix disks. To copy disks from other operating systems, you need only have the appropriate size drive—3.5- or 5.25-inch. OmniTool lets you copy single- and double-sided disks, and like the BackupTool, it offers a multi-copy mode. Although the module performs well, it would be far more useful if it allowed you to transfer files from other formats to AmigaDOS.

A powerful indexing utility, CatalogTool lets you make a database of your hard- and floppy-disk files. The program allows automatic or manual entry of filenames. You can exclude subdirectories or .info files, and set CatalogTool to ignore duplicates, and thus prevent multiple occurrences of files such as DIR and Preferences. You can create separate registers by software type, and then merge the lists to create a master inventory of all of your files. The program includes several report formats for printing the lists.

Advanced users will appreciate the EditorTool, a sector editor that reads AmigaDOS and MFM tracks. The MFM mode lets you view and edit the raw-disk ►

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format while ignoring special AmigaDOS information. You can display sector data read in AmigaDOS mode as hexadecimal numbers or ASCII text.

Finally, Project D includes three desk accessories. DiskWipe erases floppies completely, MemoryTool displays available chip and fast RAM, and ZTool!, a simple disk-copy program without error checking. You can load these utilities from the main screen or while running any of the primary tools.

RawCopy 1.3

While Project D includes numerous utilities, RawCopy is designed solely to duplicate protected software.

The RawCopy screen is sparse but functional, with two rows of boxes marked Source and Target. Selecting more than one target drive allows you to make multiple copies simultaneously from a single original. Like Project D, if you have only one floppy drive and less than two megabytes of memory, be prepared to swap disks.

RawCopy has two modes: Normal and Non-Standard DOS. You can duplicate most copy-protected disks with the Normal mode. RawCopy will duplicate tracks 0 through 80, 81, or 82, making it effective against protection schemes that use extra tracks. For heavily-protected disks and those using formats other than AmigaDOS, you must use the Non-Standard DOS option. While Project D's AutoMAGICally option will select the appro-



Line up your source and target(s).

priate mode, with RawCopy, if Normal mode doesn't work, you must manually choose Non-Standard. While Normal mode is relatively speedy (it produces a copy in about 100 seconds using two drives), Non-Standard DOS is slow (the same copy took over eight minutes).

You cannot select the program's copy parameters; RawCopy analyzes the disk to be copied and appoints the appropriate parameter. RawCopy automatically strips the copy protection from much of the software it processes, so you can then install the programs on a hard drive.

RawCopy includes separate tools for examining, duplicating, and defeating disk-based copy protection. Below the drive-selection icons are an intimidating array of boxes for selecting read length, sync word, write length, precompensation, pre-write, MFM or GCR format, and bit-cell speed. If these terms are confusing, don't expect much help from the manual. It defines the functions in very basic terms and points you to a list of reference books. Even though I am fairly well versed in these matters, I could not understand the options enough to use them.

The error checker and RAM editor enable you to read and modify raw disk tracks, duplicate error tracks, and remove error checking, but these functions are also largely undocumented.

Although many people will be unable ►



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to take advantage of the tools, RawCopy gives those experienced in assembly-language programming and disk protection the flexibility to back up new protection schemes before Micro Systems International can release an update to handle them.

How Do You Drive?

I consider Project D to be akin to a well-equipped luxury automobile; it gives you a smooth ride and lots of easy-to-use options. RawCopy will appeal to the programmer who wants to open the hood and explore the mysteries of copy protection; it offers power (though you must know how to use it) and no luxuries. The program works, but most users will find the advanced functions overwhelming. Also, while Project D is not itself copy-protected, RawCopy is. Because the program cannot copy itself, it is impossible to install on a hard disk.

Both programs perform, but Project D is a better choice for the average Amiga user. BackupTool is faster and easier to use than RawCopy, and the other utilities are a bonus. If you have a large collection of disks, you might consider CatalogTool alone enough to justify the purchase.

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Fuller Computer Systems Inc.
PO Box 9222
Mesa, AZ 85214
602/835-5018
$49.95
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Forms In Flight II

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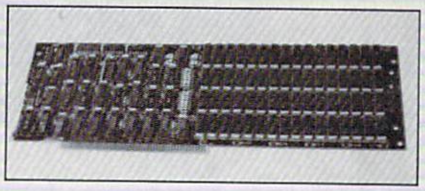
By Louis R. Wallace

WHEN I REVIEWED the original Forms In Flight release, I was impressed with the package. My enthusiasm was tempered, however, by the package's interface and the steep learning curve it produces (see p. 68 in the January '88 issue of *AmigaWorld*). Although Forms In Flight II has retained a non-standard approach, a number of added features and improvements make it one of the best 3-D object editors available.

The new version enables you to design complex surfaces and curved objects with a high degree of accuracy by combining two types of surfaces: FSurfs (flat surfaces) and QSurfs (quad surfaces). While FSurfs—curved lines joined end to end—appear to to be two dimensional, they are actually 3-D objects lying in a single plane. QSurfs are made up of four curves joined end to end. They can be flat as well, but most do not lie on a single plane. These curved lines let you create more highly-detailed objects than did the straight-line polygons the original package employed. You can edit any portion of your object using a number of options, including those for converting QSurfs into FSurfs and vice versa, for rounding a line or curve, sweeping a 2-D object into three dimensions, curv- ►

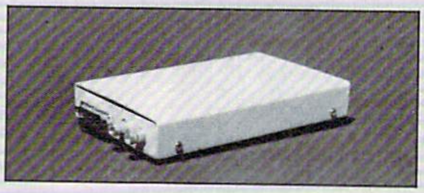
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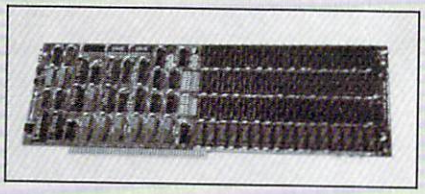
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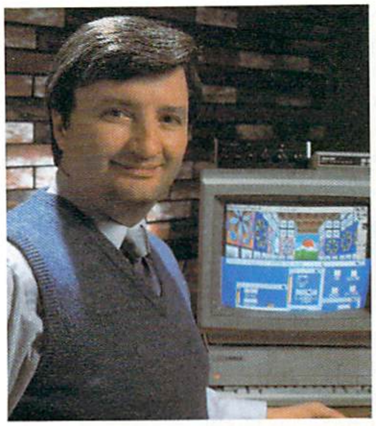
by Rob Peck

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Author Rob Peck is one of the most respected and knowledgeable leaders in the Amiga community. While with Commodore-Amiga, Rob wrote the ROM Kernel Manual, the bible of Amiga Developers. Rob is also the author of Programmers Guide to the Amiga and numerous magazine articles, including "Reaching the Notes: Easy Access to Amiga Audio" in the July/August 1987 issue of AmigaWorld.

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ing any part of the object, or changing its color or size.

As before, you can rotate an object in three dimensions to get different views, or you can change the position of the camera (think of this as walking around your car instead of rotating it) to get different perspectives without moving an object you have positioned very precisely. You can also zoom the camera in and out, or convert your object between two and three dimensions, without loss of spatial data. You can enlarge and reduce objects, too, although this alters the data.

Forms In Flight II does not render in HAM or ray-traced formats. You can generate objects in wireframe mode or as solid-shaded images, and, with the addition of a dithering technique called Phong shading, produce very realistic solid objects. Generating a Phong-shaded object requires that you specify a range of colors and establish a dithering range. While not difficult, it is time-consuming because you will likely need to repeat the process to get the results you want.

Forms In Flight II lets you load an IFF image to use as a background for your objects. More importantly, the new Texture Mapping option lets you wrap IFF pictures around even the most complex three-dimensional objects. With sufficient RAM, you can map up to 15 pictures on one surface, assigning different images to various portions of the surface.

Forms In Flight II includes a powerful animation module—Fast Flight—which was not a part of the original package but was offered in earlier upgrades. You can generate very complex and impressive animations using a hierarchical format where objects are either parents, children, or siblings. The terminology makes orchestrating your animation easy—all motion is relative to the parent—and the package includes some good examples. The program does not employ the standard anim format, so you must use the Fast Flight module (fortunately, it is freely distibutable) for playing your sequences.

Controlling Interest

Neither Forms In Flight nor the upgraded version employ a standard Intuition-style interface, and although I like the new format better, the package is still not easy to learn. Forms In Flight II brings up a menu requester when you click the right mouse button; the requester appears wherever your pointer is. While I like the concept, the requester itself is awkward to use: it displays submenu items to the right of the main menu, and their options still further right. In interlaced mode, the type shrinks, making it difficult to read the selections, and easy to accidentally select the wrong one. The program should offer two versions of the requester: one for interlaced mode and another for non-interlaced displays.

The new manual (over 100 pages long) is much like the old one. It takes a tutorial approach, and each chapter ends with an overview list. Although the documentation is good, it is sometimes difficult to follow.

Forms In Flight II's curved surfaces enable you to generate complex objects that are beyond the reach of other Amiga 3-D rendering packages. Phong shading and sophisticated IFF-texture mapping are welcome additions, too. On the negative side, the program still has a steep learning curve, and it is memory ►

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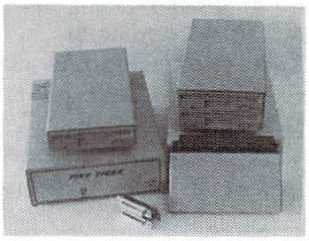
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intensive. Nonetheless, Forms In Flight II is a very valuable graphics tool.

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Micro Magic
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Marina del Rey, CA 90292
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$119
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VIRUS INFECTION PROTECTION

Help yourself.

By Louis R. Wallace

IF YOU BOOT with a virus-infected disk, the small virus program loads into your computer's memory. From there it will copy itself to any other disks you insert into the computer, and overwrite the custom boot blocks that many programs use for copy protection. Once such a boot block is destroyed, the software will not load properly.

Virus Infection Protection (VIP) is a viral remedy. It is, essentially, a database



Ward off damaging software viruses.

program that stores boot blocks. With VIP you can create a disk file of custom boot blocks for all your software. Then, in the event that a software disease strikes, you can restore the original boot block, and if that is all the damage the virus has done, your disk will be back to normal.

LET'S TALK PROTECTION

All of VIP's menu options are easy to learn and use. One option will start the program's menus speaking your language—either English, French, German, Spanish, Danish, or Italian.

Before you can begin to store boot blocks, you must create a new VIFF file (a boot-block database), then load it. Once you set up a VIFF file or load an existing one, the VIFF Entry menu becomes active. From here you can add to the database, select a boot-block entry, or remove one. The Sort option allows you to organize entries by name, date of entry into the file, the date the disk was made, or by VIFF ID number (which VIP assigns to each boot block as it is entered in the database). The Write option is the one you will need when a virus strikes; it restores a boot block to an infected disk. Print gives you a hard-copy list of your file entries.

Under the Check menu you will find Examine, which allows you to view the contents of a boot block and lets you know if it is infected with any of the viruses VIP recognizes. If VIP finds a virus it does not know, it will tell you that the boot block is non standard. Using Classify, you can teach VIP to recognize new viruses by name: you simply read in data ►

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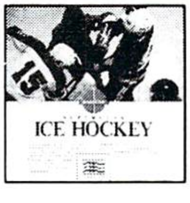
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from an infected disk and give the virus program a name. If VIP later encounters that type of virus, the program will refer to it by name.

VIP is not copy protected. I had no problems storing it on my hard disk, and it worked well with the 1.3 operating system, including the Fast File System. The manual is brief but adequate.

After making VIFF entries of several commercial games, I infected the disks with an SCA virus. Using VIP, I quickly and easily restored the boot blocks, then loaded and played the games. I did not detect any differences in the programs after restoration.

VIP works only when you use it. If a disk becomes infected before you have stored it's boot block, you are out of luck—unless you can borrow a copy from a friend.

VIP's Examine option requires that you keep a full hi-res screen running. If you want only to check for the presence of viruses, I suggest you look to the public domain; you can find better, more discrete virus checkers there. If you have a substantial investment in copy-protected software that uses custom boot blocks, you should get VIP and use it. It can pay for itself with one save. Better yet, do both and you will likely be safe from all of today's viruses.

Virus Infection Protection
Discovery Software International
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Easy Titler

Simple is as simple does.

By Gary Ludwick

EASY TITLER BILLS itself as the easiest-to-use titling program available for the Amiga. I can't argue with that claim. The question is, is it *too* simple?

The program autoboots on Amiga 500 and 2000 machines, but to use it on an A1000, you must call it up from the CLI. You need only memorize one control key; everything else is on screen.

Easy Titler keeps things simple on the creative end as well. You have a choice of two typefaces, block or script (block has a bold version, too), and you can select from three colors for those faces: black, white, or yellow. You also have three options for making the type appear on screen: Push Up (the crawling type often used for TV credits), Snap On, and Fade In.

Make your choices, type in your title, and you are ready to roll.

As you might expect from the choice of effects, Easy Titler is also a slideshow generator. Each show accepts up to 16 screens and you can vary the effect used between screens. You have no control over timing for either the effect or the display of your title. Do you want to display one screen twice as long as the others? Then you must make two identical screens and use the Snap On effect between them so that the transition is invisible.

Easy Titler allows you to display your titles over background pictures—either digitized photographs or artwork. The program's Picture Directory can hold up to four 320 × 200 IFF images, and the program will call up any one of those images as directed.

Fade to Black

To decipher my conclusion, go back to the beginning of the review and substitute the word "limiting" for every occurrence of "simple." That's the word on Easy Titler. In fact, the program is limiting to the point of near uselessness. Easy Titler is so simple to use that a fifth grader can operate it, but even a novice videophile will quickly yearn for more sophistication and flexibility. I suggest you save your money for VideoTitler (Aegis) or TV*Text (Zuma/Brown Wagh). They may not be as easy to learn or use, but they won't leave you powerless, either.

Easy Titler
JMH Software
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Maple Grove, MN 55369
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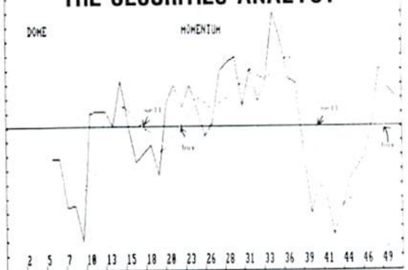
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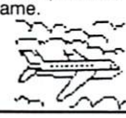
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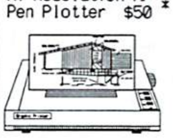
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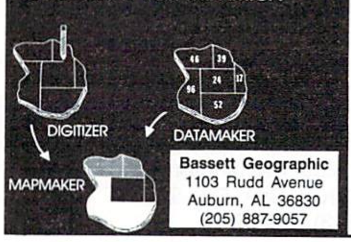
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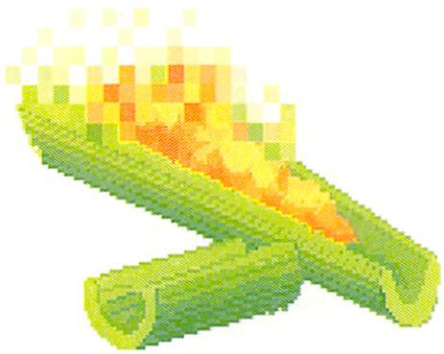
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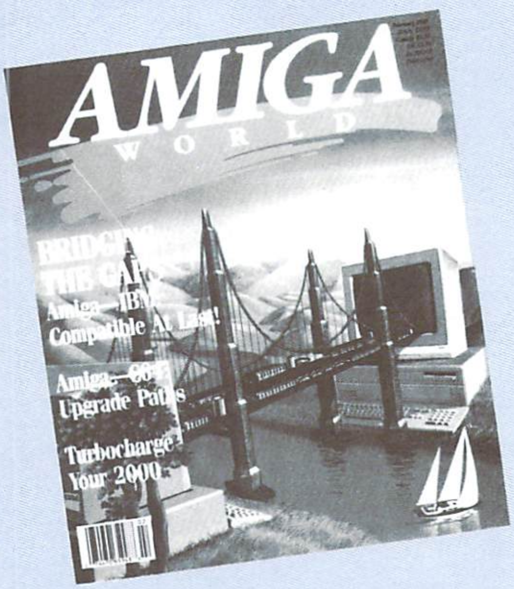
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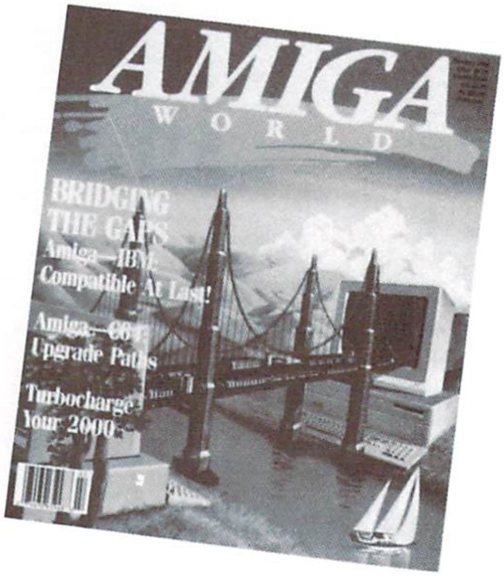
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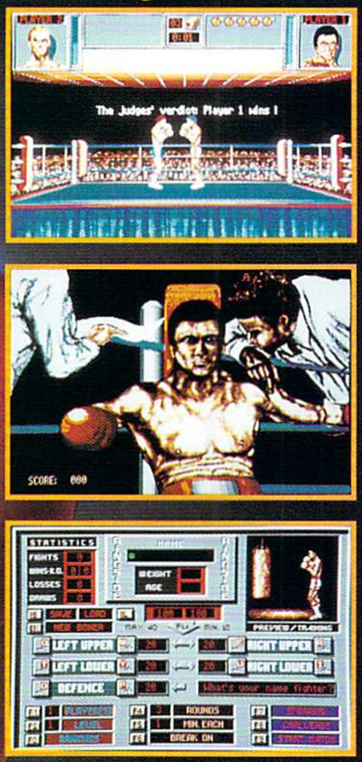
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